December 1941

CONSUMERS' RESEARCH Bulletin

CONTENTS

Consumers' Research
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THIS NUMBER is one of 9 BULLETINS issued during the year by Consumers' Research which are not confidential. This BULLETIN may be freely discussed with friends. We hope that you will use the opportunity to show them what CR is doing for consumers.

Symbols used to indicate sources of data and bases of ratings:

A—recommended on basis of quality

AA—regarded as worthy of highest recommendation

B—intermediate with respect to quality

C—not recommended on basis of quality

cr—information from Consumers' Research's own tests or investigations

1, 2, 3—relative prices, **1** being low, **3** high. Note that price and quality are completely differentiated in CR's listings; **a quality judgment is independent of price.**

40, 41—year in which test was made or information obtained or organized by the staff of Consumers' Research.

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Responsibility for all specific statements of fact or opinion at any time made by Consumers' Research lies wholly with the technical director and staff of the organization.

Please send notice of any change of address at least one month before it is to take effect, accompanying your notice with statement of your old address before the change. Duplicate copies cannot be sent to replace those undelivered through subscriber's failure to send notice, except at the regular price for orders of such material as back issues.

Note: For a detailed account of CR's early history, policies, and information as to the answering of special inquiries about commodities, subscribers are urged to read the INTRODUCTION TO CONSUMERS' RESEARCH, which is sent on request to anyone without charge.

Off The Editor's Chest

SEVERAL SUBSCRIBERS have written to us recently stating that they have been told by dealers or manufacturers that certain products which CR has listed under A. Recommended and B. Intermediate, respectively, were in fact identical, although sold under different trade names, **because they were made by the same manufacturer.**

Some of our readers surprise us occasionally with the greatly oversimplified assumptions they make regarding the identity or non-identity of products. It seems to us very curious that anyone would assume that because two products were made by the same manufacturer, they would be identical either in details or in quality. We have supposed that everyone was aware that certain goods sold by Sears-Roebuck under their brand name were in many cases made for them to Sears' own specifications by large manufacturers who market a product or products of the same type (but not necessarily of the same quality) under their own or a nationally advertised brand name. Many manufacturers produce a given article under scores of brand names, sometimes all of the same type and quality, sometimes slightly varied, at least in minor details of appearance or fittings, in order that the local independent merchant may not recognize them at a glance as being products designed to be sold in competition with him by chain stores or mail-order houses at a cut or bargain price. Another and related purpose is to prevent the consumer who is shopping around on a price basis from ever being sure that he is comparing items of the same design or quality when one article or appliance is offered much more cheaply than another. Sometimes there will be as many specifications for a given article as there are large distributors or dealers to buy it.

The problem in any given case may be much less simple than the consumer is likely to assume, for even when articles are identical in appearance, they may be wholly different in quality. For example, one distributor may buy the "rejects" (products which look all right but fail to pass certain technical tests), whereas another dealer or dealers may buy the first-line quality of the same goods.

In many fields, especially tools and building supplies, some large dealers will handle lots of materials which have been rejected by large purchasers or which failed perhaps to pass a government inspection, yet so far as the ultimate consumer is concerned, the goods are identical, because he lacks the means, available to inspection experts for a large industry or a government department, for discriminating the good from the bad (e.g., an unduly brittle or improperly hardened pair of pliers from one passing the usual metallurgical inspections). As often as not, the difference in quality, which means a lot to the manufacturer because of the greater care in production and testing that is required, and the higher percentage of rejects, will entirely elude anyone not equipped with special measuring instruments. On

[*Please turn to page 23, column 1*]

CONSUMERS' RESEARCH BULLETIN, issued monthly, except during July and August, by Consumers' Research, Inc. Editorial and Publication Offices, Washington, N.J. Single copy 30c. Subscription price (including Annual Cumulative Number) $3 per year, U.S.A.; Canada and foreign, $3.50. For libraries, schools, institutions, etc., a special subscription of nine monthly BULLETINS (October-June, inclusive) is available at $2; Canada and foreign, $2.50. Entered as second-class matter November 9, 1934, at the Post Office at Washington, N.J., under the Act of March 3, 1879. ★★ Printed in U.S.A. ★★ CONSUMERS' RESEARCH BULLETIN is on file in many school, college, and public libraries and is indexed in Industrial Arts Index.

What Makes a Good Piano?

By William Braid White, Mus. D.

This is the first part of an article discussing the good and bad qualities of pianos, written by a distinguished authority on piano design and construction. Much of the information will be new to musicians as well as to consumers in general, and should be of help to anyone in selecting an instrument. Part II, which it is expected will follow in the January Bulletin, will compare further the performance given by the popular types with that of the classical type and will describe certain tests which the musically minded consumer can apply to pianos.

THE PIANO, more correctly the pianoforte, is a stringed, keyed instrument of music. There are about 11,000 separate parts in a grand piano and about 9000 in an upright. The instrument, therefore, is an elaborate machine. It must be rigid and massive, yet delicate in action and movement of parts, and accurate in design and construction.

All pianos may be divided into two classes, the "classical" and the "popular." The first class comprises the larger sizes of horizontal (grand) pianos, which professional musicians (especially professional pianists) as well as cultivated music lovers choose in preference to all others, on the obvious ground of their unquestioned musical and mechanical superiority. Their prices range from $1000 to $3000. It is an historical fact that the principles and practices of piano making in its highest manifestations were worked out on pianos of this type. They are unquestionably the pianos par excellence.

On the other hand, the lower-priced "miniature grand" pianos (i.e., those less than 60 inches in overall length) and small uprights (commonly known as "spinets" or "consoles") constitute perhaps four-fifths of the current output. It is these that present to the piano maker the most difficult technical problems when he tries to reproduce in them even an approach to the classical beauty of tone and responsiveness of touch—to say nothing of the classical ability to stay in tune and to remain efficient through years of use—that characterize the "classical grand." It is, therefore, important for the prospective piano buyer to know the answers to the following questions, which we shall discuss in this and the succeeding article:

1. What should properly be expected, tonally and mechanically, from a piano of the classical type?

2. Taking the classical piano as the standard of comparison, how close can the smaller pianos of the currently popular types be expected to approach that standard?

The bass strings of the piano are not only the longest but also the heaviest, being load-

Christmas Greeting

AS we approach the Christmas Season, our thoughts turn to our many consultants and advisers, and especially to you, our subscribers. Your correspondence and good wishes are constant manifestations of your friendship and loyalty to the work Consumers' Research is doing.

IT is your helpful criticism and advice, and continued moral and financial support and cooperation, in fair weather and foul, that have made our success possible in serving hundreds of thousands of consumers in American homes, schools, and colleges. Your support has helped to a fuller enjoyment of this Christmas Season a great host of consumers, who have been enabled to make their dollars go farther and the goods which they buy, serve them better. The Board of Trustees of Consumers' Research and technical, editorial, and clerical staffs thank you all most sincerely, and wish you a Merry Christmas and, to the utmost possible in these troubled times, a Happy New Year.

Washington, New Jersey
December 1941

ed with wrappings of soft copper or steel wire. Thus in one well-known make of 7-foot grand piano, the lowest bass sound is generated by a string which has a speaking (vibrating) length of some 60 inches and is heavily loaded, while the shortest string, giving the highest sound in the treble, has a speaking length of only 2 inches and weighs only about one nine-hundredth as much. The strings producing the tones of lower pitch are necessarily shorter in the smaller pianos and in them cannot be made to vibrate so correctly or to give such full, clear tones.

Now everyone knows that the tonal output of the strings of a piano is varied in loudness by variations of the player's touch on the keys. One can play loudly or less loudly within a wide range of variation. What is not so well known is that these variations of sound quantity are always accompanied by parallel variations of sound quality. Every musical string, such as the strings of a piano, always gives rise to sounds of complex character, owing to the fact that every such string always produces not only its own nominal or fundamental tone of the pitch assigned to the sound (e.g., 440 vibrations per second for Middle A), but at the same time gives out a variable number of overtones or harmonics. These harmonics determine the tonal color, timbre, or sound-quality of any and every musical instrument.

In the case of the piano, the number and intensity of the tone-coloring harmonics will always vary with the amount of energy delivered by the player to the hammers through finger pressure on the keys. When, as in the case of the small popular types, all the delicate relations between length and tension of strings and other factors must be more or less radically altered from those prevailing in the classical piano, the effects obtainable by even an accomplished pianist are necessarily inferior, particularly in the regions of the bass, and generally, in fact, throughout the whole left-hand side of the keyboard.

The action of a piano is designed and constructed for the primary purpose of allowing the player, by striking the keys of the piano, to hurl or project the hammers at the strings as rapidly as the fingers can move. The advantages in rapidity of response, delicacy of touch, and capacity to translate finger pressure into varying tone must always remain with the grand piano, but in the well-designed and well-constructed vertical or upright piano, the action itself ought to give a performance almost as good as that of the best grand piano.

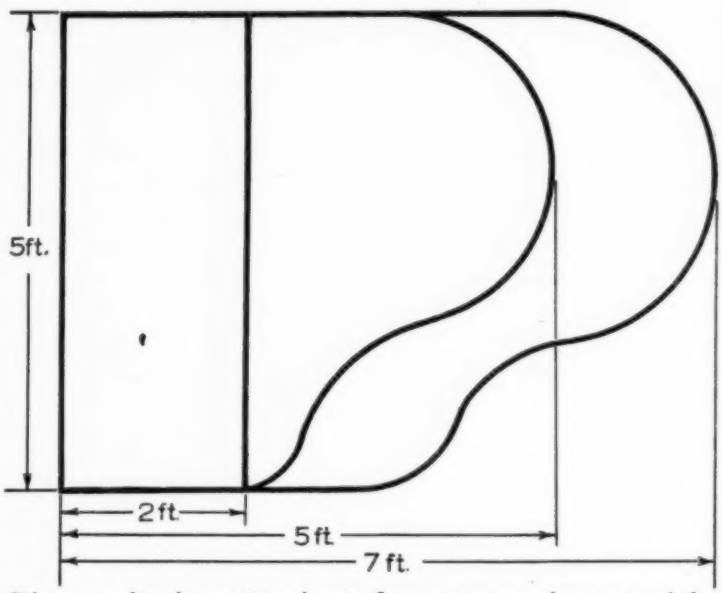


Diagram showing approximate floor space requirements of the 7-foot grand, the 5-foot grand, and the upright piano(all with the standard 88-note keyboard).

In the classical type of grand piano the following properties may be expected of the action:

1. A very finely balanced key movement, giving tone with pressure of as little as 2½ ounces on a key in the high treble and not more than 4 ounces in the low bass.
2. A very rapid "repetition"—capacity to repeat a blow upon the string at very high speed. A fine action in a fine grand piano will "repeat" ten times per second.
3. A minimum of the feeling of "catch" that one notices about halfway down when depressing the key very slowly.
4. Capacity to deliver a blow upon the string powerful enough to produce infallibly an audible sound, even when the key is depressed very slowly for the purpose of evoking a very faint one.
5. A substantially perfect uniformity in all the features just enumerated, in all parts of the keyboard.
6. A silent, immediately effective, action by the right-hand, or damper, pedal.

7. Reliable action on the part of the middle, or sustaining, pedal.
8. Rapid and easy action of the left-hand pedal, which shifts the keyboard slightly to the right (or left) so that each hammer strikes only two instead of three strings of each three-string group, thereby slightly deadening and also coloring the sounds evoked.

The soundboard of a piano is in effect a wooden sheet or diaphragm placed beneath the strings. It is fastened very rigidly all around its edge to the framework of the piano, but the rest of its area is free to vibrate.

Soundboards have been part of the equipment of stringed instruments since the most ancient times, and it is rather a remarkable fact that, with all the resources of physical science, not to mention centuries of accumulated experience at the disposal of instrument makers today, the principles and to a large extent the methods of construction of olden times are still found to be the best. Very fine selected spruce wood elaborately built up into a sheet of the requisite dimensions, elaborate systems of ribbing (whereby a definite curvature is built into the sheet), careful,very rigid fastening all around the edge to the framework of the piano, skillful adjustment of the bridges to the strings—all this and more is required for making a good soundboard.

In a piano of classical type, we may expect that the soundboard will amplify the complex vibrations of the strings sensitively and faithfully. In the small grand pianos, on the other hand, it necessarily is less effective in reproducing sounds of the bass strings.

In manufacturing a piano, when all the parts have been put together and the instrument has been settled into proper adjustment by alternately tuning the strings and regulating the action, there remains the task of "voicing" the hammers. This is done by treating the felt of the hammers so as to remedy uneven hardnesses, uneven densities, and other irregularities until, from one end to the other of the scale, the quality of the tone is as fine and even as it can be made. The process involves slow and careful working down of the hammer felts by means of fine needles. The resulting changes in the quality of the sound are judged by trained and experienced men whose ears, from long practice, have become highly sensitive. The voicing of hammers is a long and expensive hand process and adds appreciably to the total cost of a fine piano. The best voicing is done only in the classical type of piano.

[To be continued.]

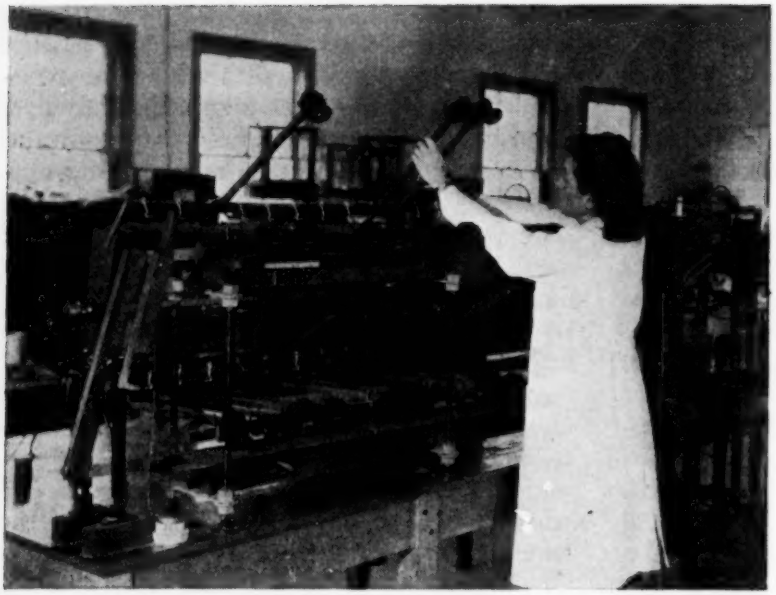
Diminishing The Christmas Tree Fire Hazard

CHRISTMAS TREES in the home should be kept standing in water to reduce drying out of the needles and the tendency of the tree to become a fire hazard. This advice comes from the Forest Products Laboratory of the United States Forest Service. The Laboratory recommends:

1. The tree should be one that has been cut as recently as possible.
2. Cut off the end of the trunk diagonally at least 1 inch above the original cut end. Stand the tree at once in a container of water and keep the water level above the cut surface during the entire time that the tree is in the house. If the tree is not to be set up for several days, it should be kept standing in water meanwhile in a cool place.

The recommended treatment just described was found, after experimentation by the Laboratory, to be the most effective, practical, and inexpensive treatment for spruce and balsam fir trees and was judged to be satisfactory for other kinds of Christmas trees.

The above recommendations of the Forest Products Laboratory are somewhat at variance with earlier recommendations publicized by the U.S. Department of Agriculture Leaflets MC-42 and 193 (reported in CR BULLETIN, December 1939), which advised setting the tree into a solution of ammonium sulphate. The earlier recommendations, however, were based on tests with small eastern red cedar and Virginia pine trees. Results of the recent investigations indicate that the advantage hitherto believed to be gained by use of chemical solutions is offset by the corresponding disadvantage that the fire-retardant chemical is taken up less effectively than water. In other words, the needles become dryer when the chemical is added to the water than when plain water is used. Present indications, therefore, appear to favor the simpler method using water to submerge the cut end of the tree.



1. Comparative resistances to abrasion of toe, heel, and high splice were determined by use of wear-testing machine designed and built by Consumers' Research. In this machine a small area of the sock securely attached to a smooth knob is rubbed mechanically back and forth over an abrading surface. An electrically operated counter at the left registers the number of strokes before the fabric wears through.

Men's Socks

THERE HAVE BEEN two developments of importance to the consumer since CR's last test of men's socks. One is the commercial production of nylon, a synthetic fiber that rivals or is even superior in some ways to silk. The other is the promulgation by the Federal Trade Commission of Trade Practice Rules for the Hosiery Industry.

Nylon, first popular in women's stockings, is now being offered for wearing by men. It has good wearing properties, but has a disadvantage in that it does not absorb perspiration. Cases of dermatitis, at one time thought to be caused by nylon stockings, were found to be caused by a resin finish used by a few manufacturers on nylon stockings and on some other cotton and silk garments. Nylon is a superior fiber for use in hose, but the consumer must be careful not to assume that everything made of nylon is better than everything made of other fibers; the quality of hose is just as dependent upon proper construction and details as upon the fiber used. When the knitting and construction are good, nylon socks give very satisfactory service.

The Federal Trade Commission's new Trade Practice Rules for the Hosiery Industry require that hose sold in interstate commerce be labeled to show what fibers are used and in what proportions. If the hose are not first quality, they must be labeled "irregulars," "seconds," or "thirds." Deceptive use of such terms as "lisle," "crepe," "combed yarn," is prohibited. Thus, one more important step toward informative labeling has been taken to help the consumer in buying clothing.

Types of Construction

Men's socks are **full-fashioned** or **circular-knit** according to the type of construction used. Full-fashioned socks are knit "in the flat" and opposite sides are then brought together. Thus the seam has to be made where the sides are joined when the flat fabric is given its sock shape. The full-fashioned socks, being made in this way to fit the ankle and foot, are rather expensive. They do have one disadvantage, that a seam extends beneath the foot; this may be found somewhat uncomfortable by some wearers.

Circular-knit socks are produced by a cheaper process, being knit as seamless tubes.

Since full-fashioned socks are more expensive than circular-knit socks, the maker of the latter sometimes feels called upon to give his product the appearance of the full-fashioned sock by working an imitation seam into the back of the leg. In this way, the unwary buyer quite often supposes that he is getting extra value for his money, whereas he is only getting an imitation of the higher-priced sock. Several brands in CR's test had these imitation seams. The fabric was not cut and sewed, but was merely folded into the semblance of a seam at the back of the sock and then stitched.

Reinforcements

Do your socks wear out in the toe, heel, or

high splice (region just above the heel)? These places, subject to greatest wear, are reinforced in most brands of lightweight socks. When buying, give your close attention to these places. On low-priced socks, the reinforcement at the heel often does not extend high enough to reach above the counter of the shoe and, hence, fails to furnish the protection from wear which the reinforcement is meant to provide. Likewise, toe reinforcements are often skimped and fail to extend far enough toward the heel end of the sock. When the sock is placed on the foot the toe reinforcement should cover the joints of all the toes. Unfortunately some socks which are particularly well reinforced so as to give good wear in one place are not sufficiently reinforced at another. Just as a chain is no stronger than its weakest link, a sock is likely to be no more serviceable than its weakest spot.

For comfort and long wear a sock should fit loosely. It is usually recommended that a sock be worn one-half inch longer than the foot. It should be knit in such a way that it will readily stretch when pulled, for easy stretchability in any kind of socks makes for comfort in the wearing.

* * *

The socks tested by CR ranged in price from 10 cents to 75 cents a pair. Colors were either plain black or plain blue. Some of the socks were thick and suitable for hard use such as given by a mail carrier or policeman. Others were of light or thin fabric. Comparative resistance of the socks to abrasion was determined at the heel, toe, and high splice. Length of the foot was measured before washing to determine variation between actual size and marked size. After washing, the socks were measured again to determine amount of shrinkage. Color after washing was also compared with color before washing as a means of determining whether the socks would retain a good appearance. The blue, in general, faded more in washing than did the black. Turning socks inside out when laundering them will help hold their good appearance longer.

Nearly all the socks shrank to some extent. In the worst cases the shrinkage was rather large, amounting to as much as three half-sizes below the labeled size. If the consumer purchases socks of one of the brands for which large shrinkage is reported in this article, special care should be taken that the size selected is large enough.

In the listings, descriptions of the material refer to the leg of the socks. The sole, toe, heel, and welt (top) are usually of cotton or part cotton—even of socks with silk or nylon legs.

2. Socks were measured before washing to determine whether actual size corresponded with the size as labeled. After washing, new measurements were made to determine shrinkage.

Socks rated A had considerably better wearing qualities in the toe, heel, and high splice than those rated B; those rated C had inferior wearing qualities. Ratings are cr41.

A. Recommended

Socks rated A had good wearing qualities at toe, heel, and high splice—better than socks rated B.

Armorfoot (Distrib. J. C. Penney Co. stores) 25c. Circular-knit with imitation leg-seam. Cotton and silk. Shrinkage, greater than average. **1**

Pilgrim Positive Wear, Sears-Roebuck's Nos. 86—1400 and 86—1402. About 21c plus postage. Circular-knit. Combed cotton. Shrinkage, greater than average. **1**

Pilgrim Service Man, Sears-Roebuck's Nos. 86—2074 and 86—2076. 15c plus postage. Circular-knit. Thick cotton fabric. Shrinkage, average. No reinforcements at toe or heel. **1**

Sears. Sears-Roebuck's No. 86—2095. 25c plus postage. Circular-knit. Mercerized cotton. Shrinkage, greater than average. **1**

Thorowear (Sold by G. C. Murphy stores) 25c. Circular-knit. Rayon and silk. Shrinkage, greater than average. **1**

Wards Better Quality, Montgomery Ward's Nos. 30—606 and 30—610. 59c plus postage for 3 pairs. Circular-knit. Cotton. Inaccurately sized. Shrinkage, somewhat greater than average. 1

Wards "Mechanic," Montgomery Ward's No. 30—405. 15c plus postage. Circular-knit. Thick cotton fabric. Reinforcement in heel and toe, scanty. Shrinkage, about average. 1

Wards Superior Quality, Montgomery Ward's No. 30—645. 35c plus postage. Circular-knit with imitation seam. Silk. Shrinkage of the black socks, greater than average—of the blue socks, average. 1

Phoenix "Extra Mileage" (Phoenix Hosiery Co., Milwaukee) 50c. Circular-knit with imitation seam. Silk. 2

Pilgrim Nobility, Sears-Roebuck's No. 86—357. 65c plus postage. Full-fashioned. Nylon. Good performance in all tests. Judged the best pair of socks tested. 2

Phoenix "Extra Mileage" (Phoenix Hosiery Co.) 75c. Circular-knit. Nylon. 3

B. Intermediate

Holeproof (Holeproof Hosiery Co., Milwaukee) 40c. Circular-knit. Mercerized cotton. Label stated "Tested and approved by Better Fabrics Testing Bureau." 1

Sears Korker, Sears-Roebuck's No. 86—305. 39c plus postage. Circular-knit with imitation seam. Silk. 1

Wards Better Quality, Montgomery Ward's No. 30—620. 24c plus postage. Circular-knit with imitation seam. Mercerized cotton. 1

Interwoven Wear-Resist (Interwoven Stocking Co., New Brunswick, N. J.) 50c. Circular-knit. Silk. 2

Phoenix (Phoenix Hosiery Co.) 50c. Circular-knit. Cotton. Reinforcement at toe, scanty. 2

C. Not Recommended

Socks rated C had inferior wearing qualities.

Extra Wear First Quality (Sold by G. C. Murphy stores) 25c for 2 pairs. Circular-knit. Cotton. Inaccurately sized. No reinforcements at toe or heel. Shrinkage, greater than average. Resistance to abrasion very poor. 1

Interwoven "Nu-Top" (Interwoven Stocking Co.) 35c. Circular-knit. Rayon and mercerized cotton. 1

Interwoven Wear-Proof (Interwoven Stocking Co.) 35c. Circular-knit. Mercerized cotton. 1

Interwoven Wear-Resist (Interwoven Stocking Co.) 35c. Circular-knit. Mercerized cotton. No reinforcement at high splice. Reinforcement in toe, scanty. 1

Thom McAn (Distrib. Thom McAn stores) 20c. Circular-knit. Cotton and rayon. Shrinkage, much greater than average. 1

Woolworth (Sold by Woolworth stores) 20c. Circular-knit with imitation seam. Mercerized cotton, rayon, and silk. 1

Woolworth (Sold by Woolworth stores) 10c. Circular-knit. Cotton. Toe and heel reinforcement, scanty. Inaccurately sized. 1

Heat Loss Through Walls Behind Radiators

STEAM AND HOT-WATER radiators are usually installed beneath windows, for in this position they have value in warming up the cold air which comes down from the window and moves across the room near the floor. This cold air, if not preheated, would cause unpleasant drafts. The window location has another advantage in that radiators so placed often do not occupy space that would be needed for furniture.

If on a cold day a person touches the exterior of an outside wall of a house at various places he will probably find, unless the house is well insulated, that those portions of the wall directly adjacent to the radiators are appreciably warmer. The higher temperatures at these points are proof that considerable heat is being wasted through these parts of the wall close to the radiators.

To cut down this waste of heat it is desirable to slow down the heat flow from the radiators into the walls directly behind them. This can be done rather effectively and cheaply by placing a curtain or screen of reflective insulation between the radiator and the wall.[1] (Reflective insulation is insulation which works chiefly by throwing back the heat waves into the direction from which they come, much as a mirror reflects light back toward the source.) The reflective insulation comes in rolls. A piece about the size of the radiator, or perhaps 2 or 3 inches larger in each direction, is cut off and mounted behind the radiator by means of thumb tacks or upholstery tacks or by fastening it to a light wooden frame of the proper size and shape. The best result will be achieved if the insulation stands free both of the radiator and of the adjacent wall so that each side, or at least most of each side, is in contact with air space rather than with a solid surface.

If a new house is being constructed, other types of insulation may, of course, be installed in the walls as they are being built. A person who is building a home or improving an old home should remember that even though insulation is not to be used throughout the exterior walls, it is always advantageous to insulate, either in the way indicated or otherwise, the parts of the walls which are in the immediate proximity of radiators.

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[1] Most reflective insulation is made of aluminum foil, which in some instances is glued to heavy kraft paper for mechanical protection. (This paper-foil combination is priced at around 3 to 4c per sq ft plus postage.) Owing to government priorities, insulation made of aluminum is becoming difficult or impossible to buy. One variety of aluminum-foil product, which would serve as insulation behind radiators, was stated to be available (Nov. 14) on order through a Montgomery Ward retail store priced at 3½ and 4½c per sq ft plus postage. This aluminum foil is mounted on an accordion-pleated backing paper, giving long triangular air cells bounded by heavy paper and aluminum foil when opened out. (This cellular type is recommended only for use behind radiators that stand 2 inches or more from the wall.)

When aluminum insulation cannot be obtained, a substitute in the form of rust-proofed, lead-alloy-coated smooth sheet steel may be used, such as *Ferro-Therm* (about 6c per sq ft) made by the American Flange & Mfg. Co., Inc., 30 Rockefeller Plaza, New York City. The latter material being approximately 0.007 inch thick, makes a durable and self-supporting sheet which can be removed for cleaning and put back again without damage.

Lipstick— Cosmetic or Costume Accessory?

LIPSTICK is rapidly moving out of the cosmetic class and into the fashion department where it is to be considered a kind of dress accessory. So advanced is this trend that instead of advertising the "allure" or "kissable" aspect of lipstick, some brands are now advocating a "different shade for each costume" and "key your make-up to your costume."

The turn of advertising to the fashion appeal, it is said, may be credited to the new Food, Drug, and Cosmetic Act, which went into effect in June 1939, and pretty much eliminated the therapeutic angle from cosmetic advertising. Fortunately for the millions of women who use lipstick, one of the provisions of that Act required that no coal-tar dyes may be used in the manufacture of drugs and cosmetics unless they are on the approved dye list of the Food and Drug Administration. This list includes only colors which have been made up according to approved formulas. Furthermore the maker is required to submit samples from each batch of dyes to the Food and Drug Administration for official certification. This puts it squarely up to the federal government to make certain that all coloring materials used in lipsticks and other cosmetics are thoroughly safe.

There are, however, a certain number of women who are sensitive to and who react unpleasantly to coal-tar dyes, particularly tetrabromofluorescein, which is commonly used in the manufacture of the so-called indelible lipstick. Three Chicago doctors reported in detail the case of a woman who complained of itching eyelids, scaling and redness of the skin about the eyes, and an eruption at the corner of one eye, as well as gastrointestinal symptoms, all of which cleared up when she switched from an "indelible" lipstick to one which contained no bromo dye.

Allergic reaction to some particular substance is, however, a personal and individual problem, and no one can say positively, in advance, that any particular person may be affected by, or immune to, a certain "allergen." So long as women show preference

Fashion vs. Sex Appeal

for the "indelible" type of lipstick, it is to be expected that manufacturers will supply them with the desired product. It is characteristic of the coal-tar dyes, including those used in lipstick, that they have sensitizing properties, which means that although the particular substance may be used for a short time or even a long time with no biological effect, it may suddenly develop irritant properties.

The dictates of fashion, however, are so strong that many women, it would seem, would as soon appear in public without their shoes as without a generous application of lipstick. Indeed, a rumpus between a high military officer inspecting a British civil de-

fense hospital and an important lady volunteer worker made the front page of a New York newspaper on this point. When last reported, the lady was still wearing the make-up that started the controversy.

Since the fashion appeal first began to receive emphasis in advertising, the lipstick market has grown tremendously. At the present time it is reported that it represents a business of some $8,500,000 wholesale, with three main classifications—the 10c size, 50c size, and $1 size. One trade journal has estimated that over 3,000,000 women keep in use an average of two and a half sticks. Although the fashion promotion angle increased the number of shades, there are certain colors that remain favorites year in and year out. Leading the sales charts are the Medium and the Raspberry shades.

Paul Gallico probably summed up the universal male point of view in an article entitled "Girls, Take Off Those Masks!" which first appeared in a well-known fashion magazine. The gentleman undoubtedly laid about him pretty hard when he referred to "a gooey paste the color of overripe tomatoes, red lead, or that nasty blackish stuff which makes a girl look as though just before she had gone out her old man had let her have it with a blueberry pie." It remains to be seen, however, whether Mr. Gallico's complaint has any effect on the sales of lipstick—when it's a case of Man's Opinion vs. the March of Fashion, the loser can usually be identified in advance.

Since the government has taken over the policing of the purity of the dyes used in lipstick, any major doubt as to this factor of lipstick quality appears to have been eliminated for the present. The desirable features in a good lipstick are considered to be firmness; relative absence of greasiness, "smeariness," and shine. It should go on easily and smoothly and should not come off too quickly or easily on cigarettes, cups, and glassware.

Some interesting tests to measure these various factors, so far as they could be judged by the laboratory methods devised for the purpose, were worked out by a competent chemist, who used a number of ingenious but simple methods designed to simulate as nearly as possible conditions of practical use of lipstick on the lips. For the benefit of teachers whose students of chemistry or home economics may wish to apply some of these tests for themselves, several of the testing procedures are described in the CONSUMER STUDY OUTLINE which is available on request to teachers using CONSUMERS' RESEARCH BULLETIN in class.

The lipsticks which follow were tested for evenness of distribution, flexibility, appearance after application (whether dull or shiny), homogeneity of the film, and adhesiveness (lack of smeariness). No brands have been given a C rating since it appears at the present time that there is little danger of harm to the user from any lipstick, except for those who may be sensitive or allergic to some particular ingredient. Those brands listed below the asterisks in the B. Intermediate group are considered to be of a somewhat lower degree of desirability than those immediately preceding. All ratings are cr41.

A. Recommended

Cashmere Bouquet, medium (Colgate-Palmolive-Peet Co., Jersey City, N.J.) 10c for 2.9 grams (3.4c per gram). **1**

Flame-Glo, medium (Distrib. Rejuvia Beauty Laboratories, Inc., 116 W. 14, New York City) 25c for 4.2 g (6c per g). **1**

Evening in Paris, medium (Distrib. Bourjois, Inc., 35 W. 34, N.Y.C.) $1 for 4.21 g (23.7c per g). **2**

Revlon, bravo A10 (Revlon Products Co., 125 W. 45, N.Y.C.) $1 for 4.2 g (23.8c per g). **2**

Tangee, red-red (Distrib. The George W. Luft Co., 34-12 36 Ave., Long Island City, N.Y.) 89c for 4.2 g (21.2c per g). **2**

B. Intermediate

Irresistible, raspberry (Distrib. Irresistible, Inc., Jersey City, N.J.) 10c for 2.56 g (3.9c per g). **1**

Avon, pagoda red (Avon Products, Inc., 30 Rockefeller Plaza, N.Y.C.) 52c for 3.35 g (15.5c per g). **2**

Max Factor's Tru-Color, indelible medium red (Max Factor & Co., Hollywood) $1 for 4.1 g (24.4c per g). **2**

Richard Hudnut, carmeen (Distrib. Richard Hudnut, 113 W. 18, N.Y.C.) 94c for 3.98 g (23.6c per g). **2**

Almay, medium (Almay Pharmaceutical Corp., N.Y.C.; distrib. Schieffelin & Co., 16 Cooper Square, N.Y.C.) $1.10 for 3.35 g (32.8c per g). **3**

Elizabeth Arden, stop red (Elizabeth Arden, 681 Fifth Ave., N.Y.C.) $1.59 for 3.25 g (49c per g). **3**

* * *

Pond's "Lips," heart beat (Pond's Extract Co., 60 Hudson, N.Y.C.) 49c for 4 g (12.25c per g). **1**

Angelus Rouge Incarnat, medium 409, originated by Louis Philippe (Distrib. Affiliated Products, Inc., 257 Cornelison Ave., Jersey City, N.J.) 79c for 3.05 g (26c per g). **2**

Helena Rubinstein, red raspberry (Helena Rubinstein, Inc., 715 Fifth Ave., N.Y.C.) $1.03 for 3.9 g (26c per g). **2**

Charles of the Ritz, No. 328, red wing (Charles of the Ritz Distributors Corp., 9 University Place, N.Y.C.) $1.50 for 4.45 g (33.7c per g). **3**

Automobiles of 1942

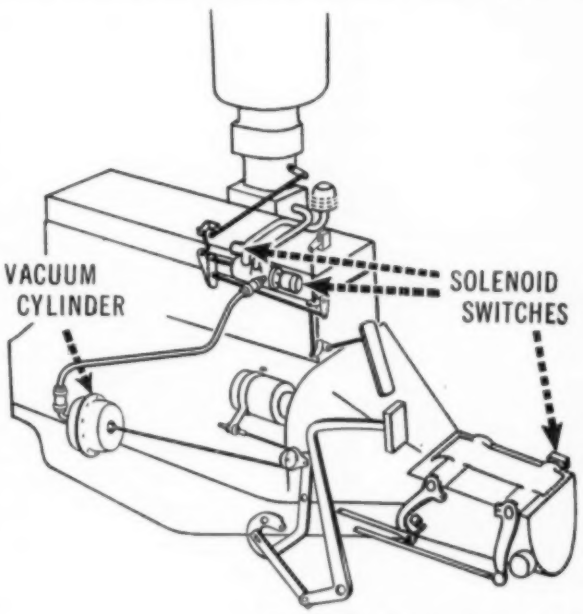
Preliminary Study by CR's Engineers

ALTHOUGH most of the Automobile Shows have been called off, car builders have made enough changes in car appearance to persuade the style-conscious, motor-minded buyer possessed of sufficient ready cash into turning his old car in for a 1942 model. One trade paper, however, reports that the response to the 1942 models has been far short of expectations. This may be in part a result of the new time-payment regulations which require one-third of the price as a down payment, and require too that the payments be completed in a shorter total period. Many buyers are refusing to be stampeded by the 1942 label, being really impressed more by good appearance than by date, and thus are hanging on to their present cars, if in good mechanical condition, even though they may be several years old.

One of the disadvantages of the new cars will be the lower quality steels which automobile manufacturers will have to use, on account of the shortages of certain metals, particularly nickel. The early production may be satisfactory in this respect, but as the stocks of original materials are used up, substitutions will have to be made. The substitute materials, while they may be superior to some used ten or twelve years ago, will pretty surely not be up to 1940 standards of strength and quality. Relatively few of the cars have been much improved in appearance; some are distinctly less attractive than they were last year.

This Year's Body Style Changes

Real changes are few except for the expected extension of the trend toward automatic or semi-automatic transmissions. On these, more later. Front ends continue to broaden out and shine with chrome and stainless steel in spite of the need for these materials in defense production. The makers are supposed to have had these materials in stock and to be using them up. So far as the consumer goes it would seem better to have turned them over for defense uses. Later in the year, these trims may disappear and be replaced with painted strips or, perhaps, extruded strips of plastic. Oldsmobile, it is said, is experimenting with aluminum paint to secure the desired glitter in appearance. Radiator grilles are now of steel stampings, which seem more suitable in any case.

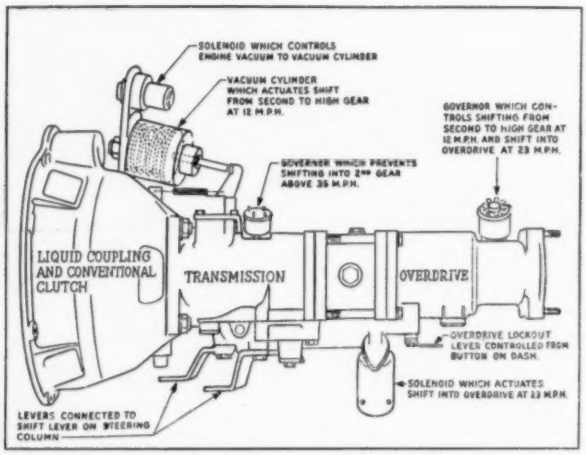


Courtesy of Packard Motor Car Co.

1. Packard's automatic clutch, which is available as extra equipment, is operated by vacuum from the engine, and electrically controlled. The automatic system can be made inoperative, when desired, by a control button on the instrument board.

Perhaps the most surprising and the most disappointing change is in the *Lincoln-Zephyr's* front end. After deciding upon a new and very attractive front end in 1936 and holding the palm for good design for five years, the Zephyr's stylists have abandoned the lines which made the car distinctive and it is now hard to distinguish from the *Cadillac*. It is also using 15- instead of 16-inch wheels, which, of course, reduces road clearance and thus the usefulness of the car for the rural or bad-road user.

The front ends of nearly all 1942 cars are more massive, more "bull-doggy," and are



Courtesy of Ford Motor Co.

2. Arrangement of parts in Ford's fluid coupling, overdrive, and controls, available as extra equipment on Mercury *and* Lincoln-Zephyr.

considered less attractive than before. Even Packard has succumbed to the new trend and bears only a distant resemblance to the old "corners and curved top" which was distinctly Packard for many years.

Running boards are either missing or covered by the closed doors. In some designs, for example *Buick*, *Oldsmobile*, *Chevrolet*, and *Pontiac*, the "swell" of the front fenders is carried back into the doors. (In some *Buicks* the rear fenders also extend forward into the rear doors.) This adds to the cost of dies, probably takes more steel, and can add materially to the cost of the cleaning-up job on the body in case of a side swipe. Some will recall that Chevrolet made a stab at this idea about five years ago, but gave it up after one year.

All these innovations are probably part of the trend toward bodies without fenders, either on the order of the revolutionary Stout *Scarab* design or some modification of it. In a few years, we will probably wonder why manufacturers were so long in reaching the sensible design which puts the riding space inside the car instead of wasting much of it on the outside. A step in the right direction too is the widening of the front and rear tread of the new *Ford* and *Mercury* which permits use of longer springs and allows the frame to be lowered. It is likely, however, that this widening of treads may run into regulatory or legislative difficulties, particularly in regions, of which there are many, where roads are now barely wide enough for cars of standard tread to pass or meet.

White-wall tires are supposed to be taboo under the rubber-conservation plans of the defense program, and *Zephyrs* have been shown without them. But new *Fords* in some dealers' showrooms are equipped with the white-wall tires. Chrysler and Chevrolet are offering special white painted metal rims, which give the effect of white sidewall tires.

Fluid Flywheels or Couplings

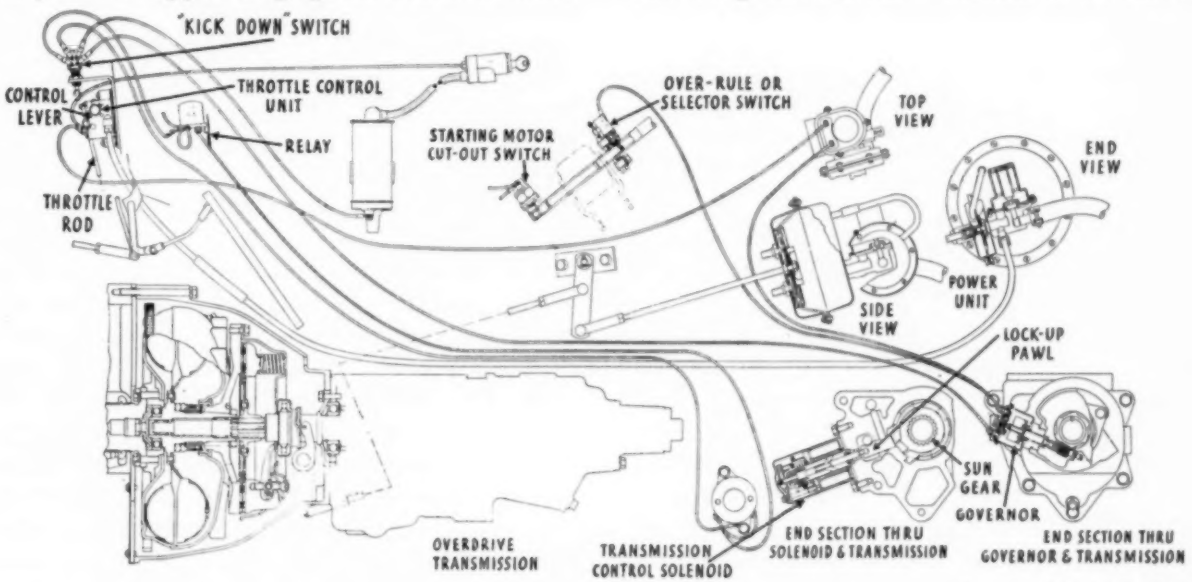
Most of the cars except those in the lowest price brackets have adopted an oil-filled coupling or clutch, commonly known as the "fluid drive," between engine and rear axle. Old-timers will remember the attempts to introduce this as an accessory something over twenty years ago. Then, as now, the contrivance consisted of a turbine impeller on the engine shaft and an opposed receiver or driven element on the drive shaft, the two forming a unit enclosed in an oil-tight case. In earlier days, the blades were curved. Now they are radial, and this seems to be about the only essential difference after twenty years. The device makes an ideal "slipping clutch" when the engine is running at slow speed, dissipating the work lost by slippage as heat to the oil instead of as wear and heat on the clutch surfaces as would be produced with a friction clutch. Some type of oil coupling is now quite widely used on the cars above the lowest price, even the mechanically careful and conservative Ford having introduced it on the *Mercury* and *Zephyr* lines as optional equipment. In Oldsmobile models with *Hydra-Matic* drive, the conventional clutch mechanism has been done away with entirely. Chrysler and most of the others retain it as a positive means of disconnecting the engine from the drive shaft. This seems highly desirable, especially for starting an engine in zero weather when even the light oil used in the fluid flywheel imposes quite a drag on the heavily loaded battery, in starting a very cold engine.

There is every indication that the fluid flywheel, or oil clutch, or whatever you wish to call it, has come to stay. But most experienced drivers feel that it should be an auxiliary and should not entirely displace the old clutch.

Automatic and Semi-Automatic Transmissions

Except for the *Oldsmobile* and *Cadillac*, there are no fully automatic transmissions. Ford has announced for *Mercury* and *Lincoln*

a semi-automatic transmission called the *Liquimatic* drive. The semi-automatics allow the driver to exercise some little choice as to the gears he wishes to use. They have two ranges of speeds; in each range the gear-shifting is automatic. Roughly, they work by means of "governors" which change gear ratios by the old planetary system; the governors throw band clutches into action in a way that reminds one of the old *Model-T* days. The upper range gives overdrive when the car speed and road conditions warrant.



Courtesy of Studebaker Corp.

3. Schematic diagram of Studebaker's fluid coupling, overdrive, automatic clutch, and mechanical and electrical controls, available as extra equipment on Studebaker Presidents *and* Commanders.

The semi-automatics are much simpler than the full automatics. The *Olds*, for example, has 33 gears and about 400 parts. But even some of the simpler ones are enough to demand almost an engineering education for repair and maintenance men who have to keep them in operation; and accordingly they may be avoided by drivers who are not sure of having the benefit of prompt and good service facilities when and as needed.

Packard continues to offer its *Electromatic* drive, which uses a solenoid to operate a valve controlling a vacuum that does the clutching and de-clutching. There are actually three solenoid switches, one for each of the three speeds. The shifting is manual, but there is no de-clutching in the usual sense. It is doubtful if the advantages warrant either the cost or the complication, but the same can be said of many other devices now in use. Packard has an arrangement to prevent the generally undesirable and unsafe freewheeling action which certain other transmissions permit. (A car is "freewheeling" when the engine shaft has been mechanically disconnected from the drive shaft; under such conditions the engine cannot be used as a brake, as is necessary for example when the car is descending a long, steep grade.)

The effectiveness of braking when the fluid flywheel is used is a point that is still in dispute. Braking with the engine as an effective drag on the car's motion is of course most essential in hilly country.

Studebaker has come out with a semi-automatic transmission in connection with a fluid flywheel which they call the *Turbo-matic*. This, like the *Oldsmobile*, eliminates the clutch pedal but not the conventional clutch. The arrangement is an electrically controlled transmission with relays, solenoids, and enough wiring for a small telephone system. As with the *Chrysler* semi-automatic, there are two ranges of speeds, with a shift lever to select the range desired. The motor cannot be started unless the shift lever is in neutral. Closing the throttle does not release the clutch, but the arrangement is such that the throttle must be closed before the clutch will release. The car goes into overdrive in either range when the speed reaches 15 miles per hour.

Hudson also has an electrically controlled vacuum system known as the *Drive-Master* transmission. The driver can select high or low speed operation or can put the accessory

mechanism out of operation and drive normally with the regular gear shift. All this requires complicated connections, including a throttle-locking device which prevents applying power before the shifting of gears has been accomplished and a governor by-pass for dropping into second when the car speed drops to 10½ miles per hour.

Gasoline Economy

A small concession has been made, by the reduction of gear ratios on several cars, to the recent scare as to a supposed gasoline shortage. This is a change for the better in any case; it may improve fuel economy by about five percent. In general, however, this trend toward better economy has been offset by an increase in the already unnecessarily high horsepower of several makes. CR now has in progress road tests for gasoline consumption on several 1942 cars. It is hoped that at least one make will be tested both with and without fluid coupling equipment. Because of shortages of certain essential materials and parts, certain cars are becoming impossible to obtain, equipped with fluid couplings and semi-automatic transmissions, at the time of writing. A car so equipped will be obtained for test purposes, provided it appears that the special transmission equipment will be continued in production. If such new types of equipment do continue in production, it is expected that the results of tests on them, which will appear in a forthcoming BULLETIN, should provide important information and help to answer the question whether the new special drive systems significantly affect, for better or worse, a car's gasoline mileage.

This Year's Price Levels

Prices of this year's cars seem a bit jumpy or uncertain but in general are much higher than last year's. For example, the delivered price of a *Ford De Luxe* four-door sedan is about $120 higher than the price of the corresponding car last year. Part of this increase is due to the doubling of the federal tax, which this year has gone up to seven percent.

According to one trade paper, Chrysler dealers are to set their own prices. On its face, this sounds fine, with its implication of resuming that old American institution of competition between dealers; also it should result in reducing the practice of "price packing"[1] to a minimum. Actually, neither of these happy results will flow from the change, it seems, for a trade source notes that prices will be uniform and that there will not be competition between dealers on prices of the new *Chrysler* models.

Ford cars may be had with either six or eight cylinders this year, but the price difference is surprisingly small—about $10.

Other Changes and Innovations

Steel stampings and plastics have largely replaced die-castings, a mixture called Ligno-Neoprene has replaced cork, cast iron and semi-steel take the place of aluminum in pistons, and nickel is out of the alloy steels to a large extent.

There have, of course, been many minor changes, and changes in details. Spring shackles in the *Ford* have been enlarged, and rubber in them replaces fiber; the inside of the body has been enlarged at the expense of the trunk space; the instrument panel has been changed and the trip mileage dial is missing from the odometer; tail lamps stand out like a bay window; and there are other changes, but none are of a kind or importance to warrant the average consumer's buying a new car merely to secure the latest in fitments or accessories.

Buick has a one-piece hood which can be lifted from either side by releasing the proper catches, or it can be removed entirely when that is needed. Other cars seem to stick to the "alligator" type of hood and provide locks controlled from inside the car.

Overhang of cars (projection of body fore and aft beyond the axles) is a serious problem in many places. Unless parking lots and garages have a ramp or curb of low inclination the bumper or bumper guards scrape as they go up or down, from level to ramp or vice versa. In some cases, these guards are ripped off, and even the back ends of rear fenders have been damaged. De Soto, according to one agent, has shortened this overhang on their cars to help eliminate this trouble. Others seem to have gone on without caring about the consumer's feelings about the matter when he has unexpectedly messed up a

[Please turn to page 24, column 1]

[1] Price packing is the trade's term for the difference (always in the dealer's favor) between the dealer's selling price and the factory delivered price plus the normal items of transportation, non-requisite accessories, taxes, etc. The "price pack," in other words, refers to the additions above the factory delivered price for which there are no logical or accounting explanations, or explanations the dealer cares to set down clearly and specifically in writing or in print.

Hairbrushes with Synthetic Bristles

THERE IS hardly a doubt that the chemists of DuPont have outsmarted the hogs of Russia, China, Germany, and India, by creating synthetically better bristles for use in hairbrushes than the hogs have been able to grow. The new bristles (sold under various names, such as Nylon, Exton, Prolon), made by methods contrived by DuPont's chemists, perform better and are far more durable than the natural bristles. Americans, therefore, to their own advantage, are able now to declare their independence of the hogs.

It is believed that all the synthetic bristles are very much alike in performance. Although the brushes as a whole may differ in a number of important ways, they must, of course, be properly made to be of good quality, whatever bristle material is used. It is important that the bristles be anchored securely in the "block" (of wood or plastic), that the tufts be properly spaced and trimmed correctly, and that the block be of durable material and of convenient shape.

The way in which the tufts are trimmed determines to a considerable extent the efficiency of the brush. The bristles in each tuft should be of varying lengths (Fig. 1).

The professional type of hairbrush has stiff, flared bristles with tufts widely spaced on a block which is curved convexly on the side toward the tips of the bristles. Most people find this type most satisfactory, for it is effective in use and relatively easy to keep clean

Women with long hair usually need two brushes, one like the professional type with stiff bristles set widely apart to penetrate to the scalp, and the other with soft bristles close together to aid in giving the hair a glossy, well-kept, and orderly appearance.

The brushes tested by CR were all examined for good points of design. They were used by eight individuals, both men and women, as a means of judging their effectiveness in use. The tufts in all six brushes were anchored in the blocks with wire staples. Security of the tufts was measured by the pull in pounds necessary to draw them from their sockets both before and after soaking in hot water. Most brushes, unfortunately, are ruined by boiling water; therefore, 135°F, a reasonable temperature for domestic hot-water supply, was chosen for the temperature of the water used in the tests. The blocks (backs) of all the brushes were made of synthetic plastic material, and with one exception were transparent. A portion of material from the handles of two of the brushes, which appeared to be celluloid, burned very rapidly when ignited. These handles, therefore, were judged less desirable than the others, which were found to be less flammable or did not catch fire at all. Ratings are cr41.

A. Recommended

Mohawk Streamline K-X (Mohawk Brush Co., Albany, N. Y.) $1.29. Professional style. Nylon bristles. Effectiveness in use judged better than average. Tufts well trimmed and securely fastened in block or back. Resistance to hot water, satisfactory. **1**

Morley, No. 150 (Distrib. Walgreen Co. Stores, Chicago) 98c. Professional style. Exton bristles. Effectiveness in use judged somewhat above average. Tufts well trimmed and secure. Resistance to hot water, good. **1**

Pro-phy-lac-tic Jewelite, No. 207 (Pro-phy-lac-tic Brush Co., Florence, Mass.) $1.95. Professional style. Prolon bristles. Effectiveness in use judged better than average. Tufts well trimmed, but only moderately secure. Resistance to hot water, good. The part held in the hand judged somewhat too narrow to be held and used comfortably. **2**

B. Intermediate

Hughes, No. E 15 (Hughes-Autograf Brush Co., Inc., 500 Fifth Ave., N.Y.C.) 98c. Professional style. Exton bristles. Effectiveness in use judged about average Tufts secure, and their trimming of average

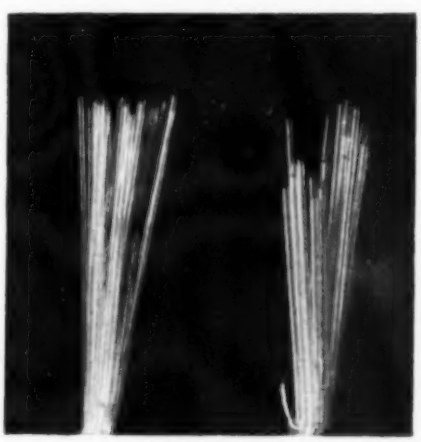


Fig. 1 The evenly cut bristles shown at the left represent an undesirable type of bristle tufting.

The unevenly cut bristles at the right are the preferred type of tuft.

quality. Resistance to hot water, good. Material of block, quite flammable. **1**

Reputation, Sears-Roebuck's No. 8—5055. $1 plus postage. Professional style. Exton bristles. Effectiveness in use judged about average. Tufts secure, and their trimming of average quality. Resistance to hot water, good. Block, quite flammable. **1**

C. Not Recommended

Metaltex (Metaltex Brush Co., N.Y.C.) $3.25. Oval style. Synthetic bristles. Effectiveness in use judged poorest of six brushes tested. Tufts insecure, and their trimming of poor quality. Resistance to hot water, poor. Brush was relatively difficult to clean. **3**

Stokers and Boilers

THE FOLLOWING listings of stokers and boilers supplement those given in the November 1941 BULLETIN.

Anthracite Coal Stokers

A. Recommended

Anchor Kolstoker, "Oil Motor" and *Aristocrat* Models (Anchor Stove & Range Co., New Albany, Ind.) The *Oil Motor* model has a very effective hydraulic drive of great power capacity. **2**

Previously listed Anthracite Stokers: **A. Recommended**—*Electric Furnace-Man*, Series 16 A, JR, and UF; *Fairbanks-Morse; Motorstoker; Stokol* and *Stokol-Mercury*. *** **B. Intermediate**—*Cooper; D & E; Freed*, Models C-K, H; *General* (also known as *Newton); Iron Fireman*, Standard and De Luxe Models; *Kolstokor Fire-Chief; Link-Belt*, Special and Challenger Models; *Master*, Standard and De Luxe Models; Montgomery Ward's No. 281—1392.

Bituminous Coal Stokers

B. Intermediate

Fire-Guard (Peerless Mfg. Corp., Louisville, Ky.) **1**

Combustioneer (The Steel Products Engineering Co., Springfield, Ohio) **2**

Fire-Tender (Holcombe & Hoke Mfg. Co., Indianapolis) **2**

Freeman, Models T-1 and T-2 (Freeman Stoker Div., Illinois Iron & Bolt Co., Chicago) Judged less desirable than the *De Luxe* and *T-3* models listed in CR's November BULLETIN. **2**

Whiting, Standard, De Luxe, and Custom Models (Whiting Stoker Co., Chicago) **2**

Previously listed Bituminous Coal Stokers: **A. Recommended**—*Anchor Kolstokor, "Oil Motor"* and *Aristocrat* Models; *Fairbanks-Morse*, Hopper and Bin-Feed Models; *O. P.* (formerly *Pocahontas*) ash-removal, bin-feed type; *Stokol* and *Stokol-Mercury*. *** **B. Intermediate**—Sears-Roebuck's *Hercules*, No. 42—9064; Montgomery Ward's *Standard*, No. 281—1334; *Anchor Kolstokor*, Fire-Chief Model; *Freeman*, De Luxe and T-3 Models; *Kol-Master*, Challenger Standard Models; *Master; O. P.*, Model HB; Montgomery Ward's *Supreme*, No. 281—1285; *Link-Belt*, Challenger and Champion Models. The following (also B. Intermediate) were judged somewhat less desirable—*Athens; Findlay*, Models 20B and 25B.

Additional Listings

Boilers for Anthracite Coal Stokers

A. Recommended

Pacific (U. S. Radiator Corp., Detroit)

Previously listed **A. Recommended** Boilers for Anthracite Stokers: *Burnham Yello-Jacket; Burnham* No. 1; *Capitol* Red Top, "A" Series; *Ideal* No. 7; *Ideal Redflash* No. 1; *Mills* "15"; *Pierce Eastwood;* Sears-Roebuck's *Indestructo*, Nos. 42– 8684 and 8685; Montgomery Ward's No. E281—7861 and 7862; *Weil-McLain* No. 67.

B. Intermediate

The following boilers are judged not to have quite sufficient clearance between retort and crown sheet, and it is advised that they be used with stokers only when the retort can be mounted 4 inches or more below the original level of the grate.

Heggie Simplex (Lookout Boiler Mfg. Co., Chattanooga, Tenn.)

Royal Semi-Tubular (Hart & Crouse Corp., Utica, N. Y.) A water-tube boiler.

Spencer "K" (Spencer Heater Co., Williamsport, Pa.)

Previously listed **B. Intermediate** Boilers for Anthracite Stokers: *Fitzgibbons Coal* "80" and "400" Series; *Burnham* Round; *Capitol* Red Cap, Sunray, and Round; *National* No. 2 Series, Round; *Peerless*, EA Series; *Pierce Century*; *Weil-McLain* Round. The following boiler has rather limited clearance between retort and crown sheet—*Fuel-Savers*, Type DD.

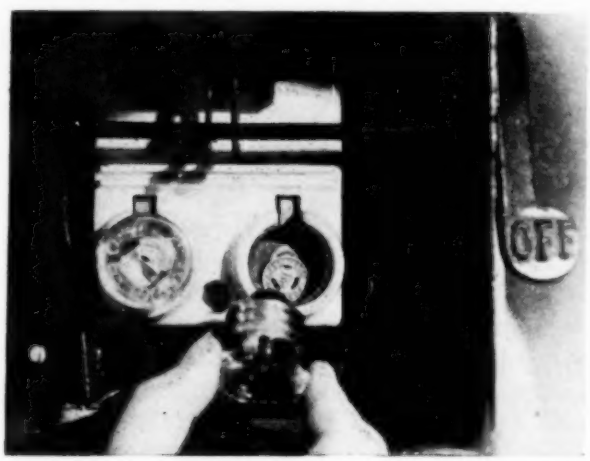
Boilers for Bituminous Coal Stokers

The preceding recommendations for boilers for use with anthracite stokers can be considered to apply for use with bituminous stokers except as follows: The two *Fitzgibbons* boilers under B. Intermediate are rated A for bituminous stokers. The *Fuel-Savers* Type DD and the *Royal Semi-Tubular* are not recommended for use with bituminous stokers.

Home Repair and Maintenance - Part I

IN GENERAL, an inspection of the home premises should be made at least twice a year to see what potential fire and health hazards need correcting, and what damage has been caused by wear and tear by the elements and occupants. The importance of making needed repairs promptly cannot be overemphasized. The house which is kept in good condition is a healthful place in which to live, is safe from needless risk of fire and accident,[1] and tends to maintain its value in dollars and cents through the years far better than the poorly maintained house.

Many families unfortunately have "budgeted themselves" right up to the hilt in order to take care of monthly payments on a new home, assuming that the deferred payments, which include fire insurance, taxes, and amortization of the loan, will be the sole cost of the family's shelter during a twenty- or twenty-five-year period. The realtor, lending institution, or builder too often fails to mention that the cost of maintenance and repair is a definite, sizable additional sum that has to be paid annually after the first couple of years.



Fuses are an important safety device in the home electric wiring system. Never try to make a burned-out fuse get by, by inserting a coin or street-car token as shown in the illustration. Any such expedient removes an essential safeguard *and may result in a fire if the wiring system should thereafter be overloaded by a short circuit or defective appliance.*

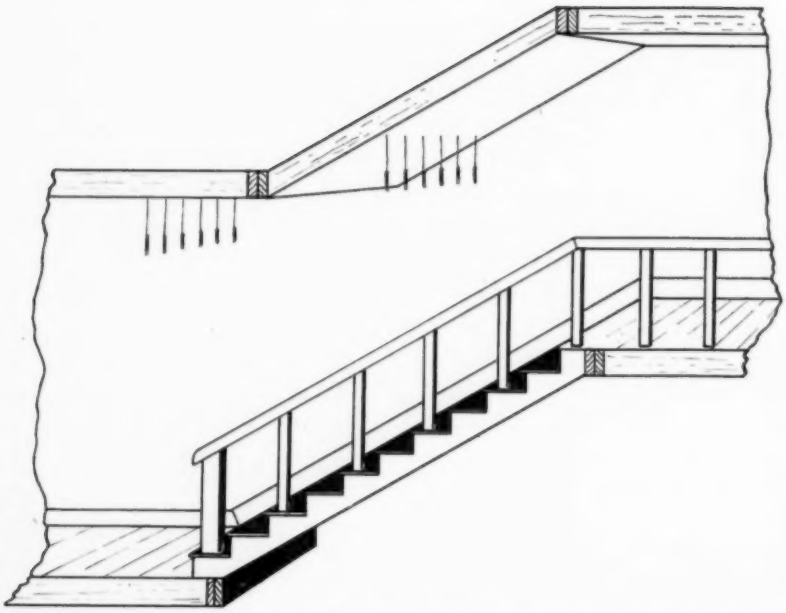
[1] *See* Planning for Safety, listed in appended bibliography.

Maintenance Costs

One way of estimating maintenance cost per month is to take one-tenth of one percent of replacement value; that is, if a house was built for $5000 several years ago, maintenance will cost at least $5 per month. There is, however, no accurate rule, for the type of construction, geographical location, and the amount of work done by the owner himself greatly affect cost of upkeep.

Fire hazard from gas stove placed too close to a curtained window.

It is assumed in what follows that the house has been properly built, hence was properly designed and structurally sound when new. In this case, maintenance involves refinishing, repainting, or repair of the inside and outside surfaces—floors, walls, ceilings, and roof—and repair of the plumbing, electrical, and heating systems.



Easy method for warning of insufficient head room on stairs or in basement.

Financing of House Repairs

Modern financing, on the deferred payment plan, has made work of modernization appear "painless." The Federal Housing Administration, for instance, insures Title I, Class I loans for repairs and improvements up to $2500. Repayment time, on a monthly installment basis, may be up to three years. The consumer is advised to be wary of such repayment plans and to use them only in case of real necessity. As an example, the cost per month, for improvements amounting to $1000, is as follows:

Paid for in	*Monthly Repayment*	*Total Repayment*
12 months	$87.80	$1053.60
24 "	45.90	1101.60
36 "	32.00	1152.00

The interest rate for this deferred payment plan is around 10%. In addition, the institution through which the F.H.A. loan is obtained may make a financing charge up to $5 per $100. If the money were simply borrowed from a bank at 5% interest, the comparable payments for 12, 24, and 36 months would be $85.42, $43.75, and $29.86 per month, respectively. (There would be an over-all saving for the 36-month period, for example, of $77.)

Fire and Accident Hazards

Elimination of undue fire hazard is normally an easy task. Most fires originate with the contents rather than with the house itself—curtains too close to a gas stove; wrapping or waste materials stored in contact with a flue or smoke pipe; ashes dumped near wood or paper; combustible materials too close to a furnace; rags containing paint, oil, or varnish, that may ignite spontaneously; electric fuses tampered with, or of too high rating.[2] These things and many like them, which may appear trivial until after the blaze, are actually the causes of many disastrous fires. A frequent checkup of the conditions about the house is good insurance against fire.

Accident hazards, too, are more frequently presented by the furnishings than by the house itself. Electric cords should be closely watched, and worn or frayed ones replaced. Edges and corners of rugs which have a way of curling up should be tacked down or sized on the back with shellac or diluted glue so that they will lie flat and not remain a tripping hazard.

Each stairway should have a substantial hand railing. Basement steps should be adequately lighted. Where headroom is insufficient on stairs or in basement, girders should be painted white or rows of weighted strings should be suspended well ahead of the obstruction, to brush the face of a person before he suffers a collision.

Sanitation Problems

Personal health in the home depends primarily upon sanitation; this, too, enters into the job of maintenance. Fly screens should be removed during cold weather and damaged wire and frames repaired. Small breaks can be covered with a patch of screen sewed on with a piece of screen wire. Patches for this purpose are now available in 5-and-10-cent stores. Rusty screens should be repainted, preferably by rubbing with a carpet-covered block (available at some 5-and-10-cent stores and from the mail-order houses) dipped light-

[2] 15 ampere size is correct for the 14-gauge wire used in house branch circuits. A burnt-out fuse is sometimes made to carry current by placing a coin in the fuse socket, with the dead fuse then reinserted. Inspect the fuse box when moving into a new house for such dangerous tampering by a previous tenant or owner.

ly in paint which has been thinned. Painting with a brush is likely to clog the meshes.

Points of possible entrance for mice, rats, squirrels, or skunks should be looked for and plugged, and traps set for any mice or rats that have already found entry. Ventilating openings in foundation walls should be covered with coarse screen to exclude trash and to bar stray animals which often pick such a sheltered spot when sick or dying.

Drainboards, shelves and other places where food is stored or prepared should be non-absorbent and free from cracks or irregularities which might harbor a potential menace to health. Cracks between tile and around the sink can be closed with white tile cement or calking putty, putty of a type that sets but does not become hard and brittle. There are also available for this purpose various types of flexible rubber strips, one of which is the *Nairn Tub Moulding*, made by Congoleum-Nairn Inc., Kearny, N. J. With some cements a waterproof glaze is supplied, to be applied on top of the porous cement after it has set. Natural wood should be given several coats of a good spar varnish, which has relatively good resistance to hot water (some persons prefer frequent applications of linseed oil). Shelves should be painted or coated with a gloss enamel.

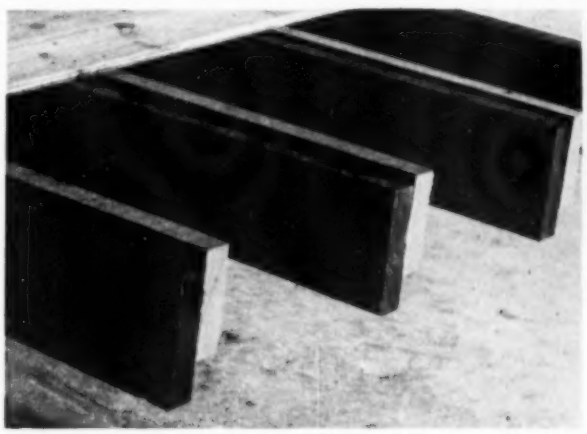
Bathroom Maintenance

In the bathroom, joints around fixtures should be tight enough to exclude water. Cracks around these fixtures can be closed in the same way as already described for closing cracks around the kitchen sink. Many bathtubs have been equipped with shower heads, but the walls and the joint between the wall and tub have not been prepared to exclude moisture, as of course they should be. Paint or enamel, though it maintains an intact film for a short while, usually peels or blisters and lets water through, in time. A certain amount of moisture finds its way into the plaster, woodwork, or tile cement in the form of water vapor, which penetrates films of paint quite readily. The surest safeguard against deterioration around showers is plastering with exterior (Portland cement) stucco troweled smooth, or lining with corrosion-resistant metal or sheet material with enameled surface not of ordinary paint or enamel, but of a **special enamel baked on.** Vitreous-glazed wall tile are also well tried and durable. Materials such as colored glass are effective but very costly.

Floors

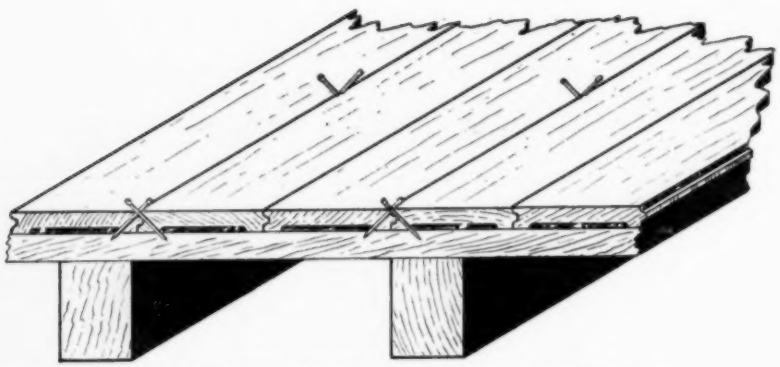
Correction of Sag or Vibration in Floors

Excessive sag indicates that joists or girders are either too shallow or too widely spaced for their span (distance between supporting walls or posts). Under the first floor an additional girder can be placed to subdivide the span and raise the floor to a level position. Usually sufficient raising can be done by driving shingles at each point of support. The shingles on account of their taper serve nicely as wedges. To remove the sag from an upper floor is a difficult problem without complete reconstruction. The best that can be accomplished at reasonable expense is to remove the finish floor and subfloor, exposing the joists. New joists are then leveled and spiked alongside the existing ones. The subfloor and finish floor are then relaid so they are carried on the new joists. This work needs to be done very carefully in order not to disturb or crack the plaster of the ceiling below.



Taking the sag out of a floor by spiking new joists at a somewhat higher level, alongside the old ones. The floor is relaid and nailed on the new level joists.

Considerable vibration noted on walking across a room does not necessarily indicate an unsafe floor, but merely one that is not properly **rigid** or stiff. If dishes or other articles rattle when someone jumps or walks heavily, try first to eliminate the rattle where it occurs. If vibration is still obnoxious, probably the only solution is stiffening of the floor in the same manner as already outlined for sagging.



One method for silencing squeaky or creaky floors.

Correction of Creaking of Floors

When the floor joists are such that they are exposed beneath the floor, the remedy for creaking is to drive wooden shingle wedges between subflooring and joists in areas where the creaking occurs. Where there is a ceiling below the joists, drive pairs of finishing nails, at opposing angles, down through the finish floor, taking care to avoid hammer dents. The heads of these nails should be driven below the surface of the floor by use of a nail set. Preferably, holes slightly smaller than the nails should first be bored to avoid splitting. . Finally, the nail holes should be filled with putty, sawdust and glue (plastic wood), or small wood pegs, and sanded smooth. Several pairs of nails may be necessary to eliminate the creak. An alternate method is to use wood screws. A shallow hole is first bored slightly larger than the head of the screw so that a wood plug can be glued in afterwards to make a good appearance. For a nice-appearing repair job, small dowels, or plugs, with the grain of the wood running parallel to the end of the dowels, are available at low cost. The methods outlined can with suitable modification be used to correct creaky stairs.

Distortion of Flooring Boards

When finish flooring has not been properly kiln dried, it is susceptible to a distortion called cupping (curving of the boards so that each resembles a very shallow trough). Any floor which has been laid six months or more has reached moisture equilibrium with its surroundings and can be sanded or scraped to a surface that should remain flat and even indefinitely. Prolonged and marked changes in moisture content of the atmosphere, however, will cause the wood to swell or contract, hence, to buckle or to open up cracks or joints.

Refinishing of Floors

The typical wood for the top or "finish" floor is hardwood treated with shellac, varnish, or with one of the new penetrating type of finishes known as **floor seals,** and then waxed. If the floor is in exceptionally poor condition, with dents from sand, grit, or shoe nails, it should be resurfaced by heavy sandpapering or scraping. In most communities a sanding machine can be rented at reasonable cost to reduce the labor in this time-consuming work. (It is important that the machine be one that is in good mechanical condition, for a machine with badly worn bearings may produce a poor and uneven floor surface.) If possible, the sanding should be done by a man who has considerable skill and experience in use of the sanding machine.

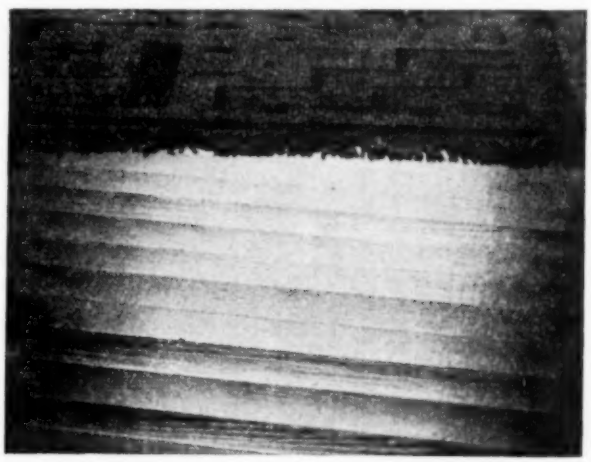
If the floor is of oak or of other hardwood having large pores, it should be filled, after sanding, with a paste filler and treated in the same way as a new floor. Paste filler is used to fill up the large pores before applying shellac, varnish, or floor seal. Some manufacturers of floor seal, however, recommend the omission of the filler.

Floor seal is now considered to be one of the best materials for floor finishing. It is applied with a wide brush or lamb's-wool applicator. After an interval of a few minutes to a few hours (the interval depending upon the make of floor seal used), the excess floor seal should be wiped off.[3] For a first-class job, the floor is then buffed with No. 2 steel wool. A second application of floor seal followed by buffing is usually desirable. To obtain good results special care must be taken that the correct time elapses between application of the seal and wiping off and buffing of excess. If the interval of time is too short, too much of the floor seal is removed; if the time is too long, the floor becomes gummy and difficult to finish properly. If the floor is to be waxed, the wax may be applied after the last coat of seal has dried.

[3] All rags or waste used in connection with or containing residues of drying oils, varnishes, and floor seals must be disposed of in such a manner as to prevent a fire hazard, since all such rags or waste are susceptible of being ignited spontaneously when stored under certain conditions common in the home.

Floor seal is judged more desirable than shellac or varnish where a good wearing surface is desired and the relatively low luster of the floor seal is not deemed objectionable. Floor seal has the additional great advantage that when it is used, spots that become worn through to the wood or have changed in appearance can be cleaned and refinished to look new more satisfactorily than with shellac or varnish.

Where the floor has been varnished and has become worn and discolored, it should be thoroughly scrubbed with a large pad of coarse steel wool saturated with turpentine. (**Fire hazard!**) This scrubbing will remove surface discolorations, wax, and part of the original varnish or shellac. The floor is then rinsed with a minimum amount of water and wiped dry. When thoroughly dried out, it is ready for refinishing. If varnish is to be applied, purchase a brand recommended by CR, and apply it with a varnish brush 3 or 4 inches wide, after both room and varnish have been heated to 70° or slightly warmer. Brush parallel to the length of flooring boards, covering only two or three boards at a time; take pains that no air bubbles remain in the coating. The finish should be applied evenly in a thin, smooth coating, so that while it is still wet ripples will not be noticeable when viewed by reflected light. Be careful not to stir up dust in or near the room until after the surface tackiness has disappeared.



A hardwood floor which is "cupped." The boards have warped so that each board has become deformed into a shallow trough.

If shellac is to be used, purchase pure 5-pound cut shellac either freshly manufactured, or shellac that has been kept **in glass containers.** The shellac should be thinned with 188 proof No. 1 denatured alcohol in the proportion of 1 quart of the alcohol to 4 quarts of shellac. At least 8 hours should elapse after application of the last coat of shellac before applying wax.

A thin coat of floor wax is less slippery and more serviceable than a thick coat. The wax should be renewed two or three times a year, after cleaning with a damp cloth or with turpentine. If necessary, the floor may first be wiped with a cloth wrung out of warm, slightly soapy water, then with a rag moistened with clear water, and wiped dry at once. For daily cleaning of a waxed floor, dry mopping or sweeping is all that is necessary. A dry mop slightly dampened with a mixture of 3 parts of kerosene and 1 part of paraffin oil is effective. The mop may be washed in hot soapy water when dirty and then renewed with the kerosene and paraffin-oil mixture.

[Part 2, dealing with maintenance and repair of roofing, wallpaper, and other topics, will follow in an early issue of CONSUMERS' RESEARCH BULLETIN.]

A Brief Bibliography

(Numbers 3, 4, 5, 6, 7, 8, 12, 15, 17, 20, 21, 22, 23, 24, and 25 are especially well illustrated. Diagrams and illustrations are of particular value in books or pamphlets for the guidance of homeowners.)

▶1. List of Published Material Relating to Home Building and Maintenance—Letter Circular LC 647. 33 pages, mimeographed, with covering explanation and index. Sent free, on request to National Bureau of Standards, Washington, D. C.

▶2. Planning for Safety—Federal Works Agency, United States Housing Authority. 22 pages. 15c, from Superintendent of Documents, Washington, D. C.

▶3. Care and Repair of the House—Bureau of Standards Building and Housing Publication BH15. 1931. 121 pages. Includes a bibliography. 15c, from Superintendent of Documents, Washington, D. C.

▶4. How to Judge a House—U.S. Department of Commerce, National Committee of Wood Utilization. 1931. 85 pages. 10c, from Superintendent of Documents, Washington, D. C.

▶5. Making Cellars Dry—U.S. Department of Agriculture, Farmers' Bulletin 1572. July 1929, slightly revised June 1938. 28 pages. 5c, from Superintendent of Documents, Washington, D. C.

▶6. Use of Concrete on the Farm—U.S. Department of Agriculture, Farmers' Bulletin 1772. June 1937. 60 pages. 10c, from Superintendent of Documents, Washington, D. C.

▶7. Rat Proofing Buildings and Premises—U.S. Department of Agriculture, Farmers' Bulletin 1638. December 1930. 26 pages. 5c, from Superintendent of Documents, Washington, D. C.

▶8. Selection, Installation, Finish, and Maintenance of Wood Floors for Dwellings—U.S. Department of

[Please turn to page 24, column 2]

Painting Metalwork -

Especially Metalwork Exposed to the Weather

The painting of metalwork on the outside parts of houses presents difficulties which are commonly not appreciated either by consumers or by painters. Much house painting on metal surfaces such as downspouting, gutters, steel sash, or railings, etc., is marred by rusting underneath the paint coat or flaking of the coat, due to failure to remove adhering rust completely at the time of painting or unwillingness to use one of the special corrosion-inhibiting priming paints required on metal. The special primers needed and instructions for their application to the various common metals are discussed.

THE MAJOR AREAS of a house are wood, masonry, plaster, or similar materials, and these receive most of the consideration given to painting; metalwork is relegated to a minor position both in the craftsman's knowledge of the problem and in his actual work on the job. Likely as not, the small amount of metal exposed on the house will be painted along with the woodwork and with the same materials; yet in the industrial world, where the importance of proper appearance and preservation of metal is given full recognition, an entirely different approach from the house painter's casual method, is made to the problem of metal coating. The chief difference between the painting of metals and the painting of other materials used in house construction is that metals require a different type of **priming paint** (the coating applied directly to the surface to be protected). Once the right priming paint has been applied, the subsequent coats can, if desired, usually be the same as those used on the woodwork.

Two important differences between metals and other building materials determine the special requirements of priming paints for the metals. First, metals present smooth, non-absorptive surfaces instead of porous surfaces that absorb paint and paint oils from priming coats. For that reason metal primers contain a higher proportion of pigments and a lower proportion of liquids, and are of a thicker consistency than primers made for such materials as wood. Second, all of the common metals are subject to some form of corrosion (rusting) which not only attacks the metal but tends to break the continuity of the coatings of paint. Hence primers for metal should prevent or at least minimize the occurrence of corrosion and are therefore often called "corrosion-inhibitive primers."

The Common Metal Primers

Red lead paint, which consists of red lead in linseed oil, is the oldest and still one of the best corrosion-inhibitive primers for metal. Red lead is an oxide of lead known as minium, and to chemists as Pb_3O_4. The commercial product may contain a little litharge, which is another oxide of lead, PbO. Red lead paint is not so readily available in the retail paint trade as it should be, and many retail paint stores do not carry it at all. Often a red iron oxide paint will be offered as "red lead paint," but the iron oxide paint does not make a satisfactory metal primer. Paint hand-mixed by stirring dry red lead pigment into oil is used by some, but the hand-mixing has disadvantages, lacks the uniformity of paint ground in paint mills, and does not produce so smooth a coating. The consumer who wants red lead paint can buy it without too much difficulty if he refuses to accept substitutes and insists on buying only paints **that bear the formula on the label.** The manufacturers of white lead paints in paste form which were listed in CR's ANNUAL CUMULATIVE BULLETIN, September 1941, column 154, also make red lead paint both as a paste and in the ready-prepared form. For most purposes the ready-prepared red lead paint should be applied as it comes, without any thinning. To use the red lead paste, thin it in the proportions of 1¾ gallons of boiled linseed oil and ¼ gallon of turpentine to 100 pounds (2¼ gallons) of the paste. Many other paint manufacturers besides those listed sell red lead paint in the prepared form, but in any event the buyer should read the formula on the label to see that the pigment consists entirely of red lead and amounts to at least 78% of the paint by weight. Many red lead paints are adulterated with iron oxide or other pigments, and some of those not so adulterated contain too little of the red lead pigment.

Chromate primers form another class of

corrosion-inhibitive priming materials. The essential pigment in the chromate primers is either basic lead chromate or zinc chromate. The chromate primers may be made with linseed oil, but very often they are made with varnish vehicles. Good varnish vehicles make the coatings more resistant to penetration of water, thereby helping to prevent corrosion. Zinc chromate primers made with phenolic resin varnish enjoy a particularly good reputation. In these at least 25% of the pigment—preferably 40%—should be zinc chromate. The chromate pigments are rather expensive, and for that reason many manufacturers offer so-called chromate primers in which there is only enough lead chromate or zinc chromate to furnish an excuse for using the name on the label. CR has not yet prepared listings of metal primers, but those interested in buying a chromate primer with phenolic resin vehicle can probably get a list of brands by writing to the Bakelite Corporation, Bloomfield, N. J., which manufactures phenolic resins but does not itself sell paints or varnishes.

A mixture of zinc dust and zinc oxide in a suitable vehicle makes an excellent metal priming paint which is fairly widely sold in the retail trade. The preferred proportions are 80% zinc dust and 20% zinc oxide by weight. The vehicle may be linseed oil, a phenolic resin varnish, or an alkyd resin varnish. Such primers are described in Federal Specification TT-P-641, a copy of which is available at 5 cents from the Superintendent of Documents, Washington, D.C. The New Jersey Zinc Co., 160 Front Street, N.Y.C., will probably be able to furnish inquirers a list of makers of zinc dust and zinc oxide paints. During the present national defense emergency, however, such paints may cease to be available for non-defense use.

Aluminum paint, which is very widely used for finish coats on metal, is not a corrosion-inhibitive primer. On clean metal that has not yet started to rust, two or more coats of exterior aluminum paint may last and protect the metal for a long time because the coating is very resistant to the penetration of water. Once rusting has started, however, it may continue to progress underneath a freshly applied coating of aluminum paint. It is therefore best to apply a good metal primer first and to use the aluminum paint, when desired and if available, for the finish coats over it. Aluminum paint is now subject to defense priority restrictions and may become unavailable.

Asphalt paints, much sold for rust prevention, are resistant to water penetration but lack the other properties needed for preventing corrosion. The asphalt paints available in paint stores, though relatively cheap, are not very durable when exposed to the weather. For metalwork out of doors, therefore, asphalt paints are not recommended except where the application of a very thick layer of asphalt roofing paint may at times delay the need for replacing flat metal roofs that are old and too badly rusted to be restored by painting.

Priming and Painting for the Common Metals

The metals most commonly painted about the dwelling are galvanized iron, common iron and steel, tinplate, and copper and bronze.

Galvanized iron is often used for gutters and downspouts, corner covers for the mitered corners of bevel siding, fly screens, and for roofs and siding on farm buildings. Galvanized iron is a surface that offers serious difficulties in painting, but the priming paints made with zinc dust and zinc oxide perform well on this material. For the **finish coats** on galvanized gutters, downspouts, and corner covers, it is usually both convenient and desirable to use the house paint that is being applied on the wood siding or, in the case of stucco, brick, or stone houses, the paint used for window and door casings and other wood trim. For galvanized fly screens, one good application of the zinc dust and zinc oxide priming paint (thinned with enough turpentine to make it easy to apply with a pad-type screen applicator made of a fabric such as wool-carpeting) will usually last for the interval between jobs of house painting, in view of the fact that the screens are exposed to weather for only part of each year. The gray color of this primer blends nicely with any of the colors commonly used for the body and trim of houses. For galvanized iron roofs, the zinc dust and zinc oxide paint may be used for both primer and finish coats, or aluminum paint or a red, brown, or green roof paint may be used for finish coats. With the dark colors, however, the attic and the upstairs rooms will tend to be hotter in the summer than they would be with a roof paint of aluminum or of light color.

Common iron or steel is used for railings on steps and porches and for ornamental grillwork. Some houses have steel window sash. It is important that the surfaces of such iron

or steel should have been properly freed from mill scale and primed with red lead or other corrosion-inhibitive primer by the manufacturer before delivery at the job. The finish paint may then be the house paint used for body or trim on the house, or it may be a house paint or enamel of the desired color. If black is desired, a black house paint or black enamel made with carbon pigments or black iron oxide should be used—do not use an asphalt or pitch paint or a so-called "screen paint."

The "screen paints" commonly sold in paint stores are cheap products of poor durability. The zinc dust and zinc oxide paint mixture already mentioned for galvanized screens is the kind to be recommended for use on the cheaper iron screens. One coat of such paint applied every four years has been known to keep common iron "enameled" screens serviceable for more than 20 years, where the screens were taken down and stored indoors during the winter seasons.

Cast-iron and pressed-steel radiators for steam and hot-water heating systems, because of their use indoors, are not subject to much corrosion on the surfaces that can be painted, except perhaps near leaky valves. The best practice, however, is to apply a corrosion-inhibitive primer when the radiators are installed. For finish coats and for subsequent maintenance, the same paint used on the walls of the room or a flat wall paint of harmonizing color may be applied. As little paint as possible should be applied, however, because thick coatings not only reduce the radiation of heat, but in time may chip off and make it impossible to repaint smoothly without removing all of the former coating.

Tinplate with soldered joints is often used for flashing and for flat roofs not subject to much traffic. The first paint job on bare tinplate should begin with a corrosion-inhibitive coating, such as a red lead or lead chromate primer. For finish coats, a very durable house paint or porch and deck paint of a color chosen for decorative effect may be used. Flat roofs are more quickly damaged by weather than roofs with considerable slope and therefore require exceptionally durable paint. Paints of dark colors, such as red, brown, and green, tend to be durable if of good quality. Usually a dark color matching or harmonizing with the color of the principal roofing material will be desired. Even with very durable paint, however, it may be wise to repaint flat roofs every 2 to 2½ years, corresponding to one repainting between each two jobs of painting on the sidewalls of the house.

Copper and bronze exposed to the weather corrode very slowly and are often left unpainted because of their durability and the attractive appearance of the weathered and corroded surface. Rain water draining from copper fly screens (and of course fittings and hardware of copper or bronze) frequently causes stains on stucco, masonry, or painted surfaces of frames, window sills, and siding below the screens, because of salts carried by the rain water, unless the screen wire is kept painted, varnished, or lacquered. A paint such as the zinc dust and zinc oxide mixture already described furnishes the most durable protection of the screen wire against the discoloring corrosion. When it is desired to retain the appearance of the metal, the screen wire may be coated with spar varnish or with clear lacquer, but such transparent protective coatings are less durable than opaque paints and will need to be renewed every year or two.

Application and Maintenance of Paint Coatings on Metals

Since the reliable corrosion-inhibitive priming paints are fairly expensive and afford only a limited choice of colors, some other kind of paint is often used for the finish coats over them. On new metal, the primer should be applied evenly in a coat of substantial thickness, about 1 gallon of paint for each 600 square feet of surface. Two coats of finish paint should as a rule be applied over the primer, though one generous coat of a very durable paint, such as iron oxide paint or aluminum paint, will often do reasonably well. The corrosion-inhibitive primers, if their color is satisfactory, are usable as finish paints and are very durable in this use. The zinc dust and zinc oxide priming paint has a pleasing gray color; chromate primers are usually yellow, orange, or red; and red lead paint is a glaring bright red in color. After exposure to the weather, red lead paint, however, tends to turn to a pinkish tone. To correct this difficulty, red lead may be tinted with lampblack in oil for better permanency of color to a brown or black shade.

Metal should be repainted before the previous coating wears out to the point at which the metal underneath begins to corrode. With such repainting, the corrosion-inhibitive primer

need not be used again, and repainting may be done with the finish paint only. If corrosion sets in before repainting is done, all loose paint and rust must be carefully removed before fresh paint is applied; the first coat of new paint should again be the corrosion-inhibitive primer. Never take the risk of painting over loosely adherent rust. The less rust left under new paint the longer the new job can reasonably be expected to last. Unfortunately, complete removal of rust by scraping and wire brushing is so laborious that it is seldom accomplished. Sandblasting usually proves more effective but is rarely available as a practical matter to the ordinary painter or householder. If some rust must be left behind to be painted over, it is important that it should be freed from all adhering moisture or dampness before the new paint is put on. A blowtorch may be used to ensure thorough drying, but some care is necessary in the application of heat in this way to avoid softening and so damaging the old paint.

A few paint manufacturers offer paints of secret composition with the recommendation that they be applied over rusty metal without taking the trouble to remove the rust. Reliable paint technologists consider that claims for such secret-composition paints are exaggerated, though it may be true that they give better service in some cases than would be obtained with ordinary paints painted on an unclean or improperly cleaned surface. Those who are best informed hold that the only trustworthy way of painting rusty metal is to remove the rust as completely as possible and then start the new painting with a corrosion-inhibitive primer of one of the generally accepted types.

Off The Editor's Chest

[Continued from inside front cover]

radio tubes, for example, differences between a first-class and a mediocre tube would not be shown at all by such a simple test as is conducted by a serviceman or radio parts dealer, but require highly elaborated methods, using instruments found only in production and development and research laboratories.

An interesting case illustrating some of the foregoing points was a waffle iron made for Sears-Roebuck by the Dominion Electric Manufacturing Company. This iron, although essentially similar in appearance, was definitely superior, as regards performance, to the iron put out by the manufacturer under his own name (see "Waffle Irons" in CONSUMERS' RESEARCH BULLETIN, May 1940). In this case, to say that a different rating for the two irons is uncalled for because the two irons were products of the same manufacturer is simply meaningless.

Sometimes we have found the opposite; the manufacturer makes two identical products, one of which is sold at a low price and one at a high price by the mere expedient of changing the label or the package, and the price tag. An instance in point is CR's report on household rubber gloves in the March 1940 BULLETIN, listing two products, both superficially and substantially identical, which were sold under two brand names, one product priced at almost twice the figure of the other.

The positiveness with which some have spoken to the effect that certain listings must be absurd in the light of two products' being made by the same manufacturer has caused us to investigate carefully a number of these cases, and in every one the suggestion was found to be without support in the facts. A most striking instance was that of two tennis balls, to which we gave different ratings but which were alleged, by a man who thought he knew his tennis balls from A to Z, to be identical. Actually, when the case was investigated, it was found that the tennis balls didn't even look alike **when dissected,** and that if they had given identical performance in the physical tests applied by Consumers' Research (deformation under a standard load, rebound, maintenance of rebound after aging, etc.), it would have been a miracle.

The most important thing to keep in mind is that names are often used to mislead or confuse, and not to reveal differences or identities without doubt or ambiguity. Some day, when industry and merchandising are conducted upon a more rational plane, for the benefit of consumers, the same name will always mean the same thing, and no one will use the same brand name for different products or give to identical products different brand names. But it will be many years—several decades, at least, we imagine—before that goal is reached.

To recapitulate briefly, any manufacturer's or dealer's claim that a C-rated product is the same as an A-rated product, or that a B-rated product is in fact better than an A-rated product, should be disregarded as so much dust-throwing, unless and until objective proof from a reputable and reliable testing laboratory is presented in evidence. The consumer in such cases must take care to distinguish mere verbal or surface plausibility from the facts, which in such cases as have been considered can only be determined by the tools and instruments of the laboratory. If there are cases where products made by a given manufacturer and sold under different names are identical, CR's careful tests will not fail to disclose that fact. R.J. and F.J.S.

1942 Automobiles

[Continued from page 12]

new car on a sloping ramp or driveway. The testing engineers seem to overlook a surprising number of very practical faults and troubles of this kind that can be most disturbing and troublesome to the car owner.

* * * * *

To sum up this year's automobile situation, it may be safe to say that the cars, **up to now,** will be found changed in only minor, more or less superficial characteristics. So far as can be judged at the present time, many of the changes would not be considered to be of a fundamentally important character, their importance in many cases being perhaps debatable, rather than certain. An exception must be noted where shortages of materials needed by defense production have required the manufacturers to make changes and substitutions in vital parts. Moreover, at some future time, as the engulfment of important production materials by the defense program continues and expands, there may be a significant or serious effect upon automobile design and quality; i.e., no one can predict at this writing how much or how important further changes in details and materials will be.

One further point that should be mentioned is the rumor, which incidentally is repeated often enough to receive notice in the trade papers, to the effect that cars coming from the factories "are not properly finished." This may be due to the pressure of defense production, but the fact remains that many dealers are said to be having to do considerable work before the cars are ready for delivery to customers. The extent to which the dealers will go in fixing up the cars will of course vary with individual dealers, hence consumers may expect, in some cases, some inconvenience and annoyance until everything is settled to their satisfaction. Perhaps it would be sound advice to suggest that this year the consumer had better take rather more than normal precautions in obtaining from the dealer a binding promise in writing that minor difficulties experienced or expected in the operation of the new car will positively be cleared up to the customer's satisfaction within say thirty or sixty days from the date of the sales contract.

Home Repair and Maintenance

[Continued from page 19]

Agriculture, Circular 489. July 1938. 26 pages. 5c, from Superintendent of Documents, Washington, D. C.

▶9. Floors and Floor Coverings—U.S. Department of Agriculture, Farmers' Bulletin 1219. September 1921. 29 pages. 5c, from Superintendent of Documents, Washington, D. C. Out of print.

▶10. American Hardwood Flooring and Its Uses—Trade Promotion Series No. 186. July 1938. 35 pages. 10c, from Superintendent of Documents, Washington, D. C.

▶11. The Care of Floors—Letter Circular LC 627. January 22, 1941. 21 pages, mimeographed. Sent free, on request to National Bureau of Standards, Washington, D. C.

▶12. Roof Coverings for Farm Buildings and Their Repair—U.S. Department of Agriculture, Farmers' Bulletin 1751. November 1935. 30 pages. 5c, from Superintendent of Documents, Washington, D. C.

▶13. Washing, Cleaning, and Polishing Materials—Bureau of Standards, Circular No. C424. 15c, from Superintendent of Documents, Washington, D. C.

▶14. House Cleaning Management and Methods—U.S. Department of Agriculture, Farmers' Bulletin 1834. January 1940. 22 pages. 5c, from Superintendent of Documents, Washington, D. C.

▶15. Suggestions on Overcoming Construction Defects and Other Factors Which Cause Paint Failure on Wood Surfaces—Circular 428, by Henry A. Gardner. Seventh revision, August 1937. 40 pages. 50c, from Scientific Section, National Paint, Varnish and Lacquer Assn., Inc., Washington, D. C.

▶16. Painting Plaster—Letter Circular LC 304. January 1938. 7 pages, mimeographed. Sent free, on request to National Bureau of Standards, Washington, D. C.

▶17. Keeping Your House in Repair, by A. Frederick Collins. 1941. 314 pages. D. Appleton-Century Co., Inc., N.Y.C. $2.50.

▶18. Without Benefit of Architect, by Frazier Forman Peters. 1937. 211 pages. G. P. Putnam's Sons, N.Y.C. $2. Information on building a house.

▶19. The Better Homes Manual, Edited by Blanche Halbert. 1931. 781 pages. The University of Chicago Press, Chicago. $3. (Out of print.)

▶20. The Householder's Complete Handbook, by Hawthorne Daniel. 1936. 420 pages. Little, Brown & Co., Boston. $2.50.

▶21. First Aid for the Ailing House, by Roger B. Whitman. 1938. 348 pages. McGraw-Hill Book Co., Inc., N.Y.C. $2.50. Believed best available book giving advice and counsel on keeping a house in good repair.

▶22. The New Home Owner's Handbook, by C. B. Smith. 1938. 197 pages. Modern Age Books, N.Y.C. 75c, paperboard; $1, clothbound.

▶23. Fix It Yourself, Prepared by the Editorial Staff of Popular Science Monthly. Eighth printing, 1935. 256 pages. Popular Science Publishing Co., N.Y.C. $1.

▶24. The Handy Man's Handbook, by C. T. Schaefer. 1931. 273 pages. Harper and Brothers, N.Y.C. $1.

▶25. The Home Workshop Manual, Edited by Arthur Wakeling. Fourteenth printing, 1939. 502 pages. Popular Science Publishing Co., Inc., N.Y.C. $1.95.

CONSUMERS' DIGEST

The enlightened consumer is a necessary encouragement to merchandising integrity.

In The Groove

With Ratings of Phonograph Records

By

WALTER F. GRUENINGER

Manufacturers now confidently predict that more phonograph records will be sold in 1941 than in any previous year. Furthermore, they expect an unprecedented Christmas gift business, even though the recently enacted 10% excise or manufacturer's tax has been passed along to the consumer as something like a 5% increase in list prices.

To help guide you in your giving, let me present some of the albums issued in 1941 which can give much enjoyment. You may add to this group the records highly recommended in this month's ratings. But always remember that the gift must fit the individual. Obviously, the high school student who dotes on Tommy Dorsey is not likely to enjoy Brahms' *Double Concerto!*

ORCHESTRA

Four symphonic masterpieces head the list: Brahms' *No. 4*, Victor M730, $5.24; Tschaikowsky's *No. 6* (*Pathetique*), Victor M553, $6.82; Mozart's *No. 39*, Columbia M456, $3.67; Beethoven's *No. 3* (*Eroica*) of which Bruno Walter's Columbia M449, $6.82, has the better recording and Toscanini's Victor M765, $7.35, offers the more dynamic performance.

Wagner devotees will welcome the *Prelude & Good Friday Spell* from *Parsifal*, Victor M514, $3.67 and the *Prelude & Liebestod* from *Tristan und Isolde*, Victor M653, $2.62.

Brilliant orchestral writing characterizes Rimsky Korsakoff's *Capriccio Espagnol*, Columbia X185, $2.62; Tschaikowsky's *Francesca da Rimini*, Columbia M447, $3.67; Strauss' *Don Quixote*, Victor M720, $5.77. In contrast, broad, rich harmonies dominate Handel's *Faithful Shepherd Suite*, Columbia M458, $3.67, and Williams' *Fantasia on a Theme by Tallis*, Victor M769, $2.62.

In the lighter vein are Mozart's serenade *Eine Kleine Nachtmusik*, Columbia X187, $2.62, and Saint Saens' descriptive *Carnival of the Animals*, Victor M785, $3.67.

CONCERTO

Only two sets deserve consideration under this heading: Brahms' *Double Concerto* (violin & cello), Victor M815, $4.72, for the connoisseur—and Mozart's most popular piano concerto, *No. 20*, on Victor M794, $4.72.

CHAMBER & INSTRUMENTAL

The year has produced seven outstanding albums of string quartets and one quintet. Four of the quartets are Beethoven's: *No. 1*, Columbia M444, $4.72; *No. 2*, Victor M601, $3.67; *No. 6*, Victor M745, $3.15; *No. 14*, Columbia M429, $5.77. Give *No. 1* to the less experienced listener; *No. 14* to the most experienced.

Mozart's *Quartets No. 17*, Victor M763, $3.67, and *No. 18*, Columbia M462, $3.67, are two of his topflight compositions in this field. A subtle, atmospheric, modern work is Debussy's *Quartet*, Columbia M467, $4.72. Schumann's romantic *Quintet*, Columbia M736, $4.20, for string quartet and piano possesses enough tonal body to please most symphonic fans.

VOCAL

Lovers of art songs will applaud Kipnis' singing in Brahms' *Song Society Volume II*, Victor M751, $6.82; Lotte Lehmann's *Brahms' Recital*, Columbia M453, $4.20, and her *7 Songs* from Schubert's *Die Winterreise*, Columbia M466, $3.37; Povla Frijsh's *Art Songs, Volume II*, Victor M789, $4.20.

The distinctive Yves Tinayre Recital, Columbia M431, $4.72, offers music from the

12th to the 17th Centuries, and Pinza carries on from there with melodious Italian Songs of the 17th and 18th Centuries, Victor M766, $4.72. From the opera comes Melchior's *Selections from Wagner*, Victor M749, $5.77, and Lily Pons' album of florid arias from Donizetti's *Daughter of the Regiment*, Columbia X206, $2.62. Two masterpieces of sacred music must not be overlooked: Verdi's *Requiem Mass*, Victor M734, $11.01, and Beethoven's *Missa Solemnis*, Victor M758/9, $13.65.

LIGHT & FOLK

Somewhat disappointing is the sparse output of interesting albums in this classification. In the Latin American field, however, you may take your choice of three albums: for the connoisseur, Brazilian Songs sung by Elsie Houston, Victor M798, $3.67; for the lover of sentimental songs such as *La Paloma, Estrellita, La Golondrina—Latin Favorites*, sung by Vargas, Victor P71, $2.62; for the lover of popular music in the Latin American manner, *A Night in Rio* by Carmen Miranda, Decca Album 210, $2.75.

Flamenco, the weird folk music of the Andalusian Gypsies of Southern Spain, appears in vocal form in *Cante Flamenco*, Columbia C59, $2.62, and in instrumental in *Flamencan Guitar Music*, Decca Album 197, $2. *Hawaiian Chants*, Decca Album 192, $1.90, offers vocal Hawaiian music expertly sung.

CHILDREN'S RECORDS

Here $1.25 goes a long way. In the list below only the last two items, each $3.67, exceed that figure.

After one hearing, all of these records impressed me as entertaining and, in some cases, definitely instructive. As a further check, however, I submitted them over a period of weeks to a group of children of various ages who acted as listening "guinea pigs." Eventually they reported that the records were "very, very good."

Up to 8 Years

Playtime Records, 70 seven-inch discs in single jackets, range from *Little Boy Blue* to *It Came Upon the Midnight Clear*. Some are new, some re-recorded, all are now released with illustrated labels which depict the title in order to enable the child who can't read to identify the selection. Each record is 16 cents.

Little People of the Forest, Bluebird Album BC43, introduces the mouse, snail, worm, ant, etc. *The Christmas Adventures of Billy and Betty* on Bluebird Album BC46 takes the boys and girls to Candyland. *More Uncle Mac's Nursery Rhymes*, Bluebird BC47, is a particularly clever musical presentation. Chiefly musical, too, are *Songs and Singing Games* on Red Robin Album 23; *Mother Goose*, Red Robin Album A20; *Happy Times Tunes*, Red Robin Album 21.

8 to 14

Sing a Song of History, Bluebird Album BC40, deftly presents a question concerning American history and answers in song. *Grimm's Fairy Tales*, Bluebird Album BC48; *Bertram and the Baby Dinosaur*, Bluebird Album BC45; *Long-Name-No-Can-Say*, Bluebird Album BC50, offer interesting stories, familiar and new. *Sleepy Time Songs*, Bluebird Album BC39, concern God, Growing Things, Children of America, etc. *Songs of America* on Red Robin Album 24 offer an assortment of our folk songs. *Hansel & Gretel*, Red Robin Album 22, and *Robin Hood*, Red Robin Album 25, give dramatizations of familiar stories with music.

Over 14

A Christmas Carol, Victor G29, is an exciting four-record dramatization of Dickens' famous story. *Peter and the Wolf*, Columbia M477, brings to three the orchestral recordings of Prokofieff's children's tale, this one with Basil Rathbone as narrator and Stokowski as conductor.

Ratings of Phonograph Records

Key: AA—highly recommended; A—recommended; B—intermediate; C—not recommended.

	Quality of Music	Interpretation	Fidelity of Recording
ORCHESTRA			
Enesco: *Roumanian Rhapsodies. No. 1*—Phila. Orch. under Ormandy & *No. 2*—Nat'l Symph. Orch. under Kindler. 4 sides, Victor M830. $2.62. Earthy, spirited works likely to please everyone.	A	AA	AA
Grofe: *Grand Canyon Suite.* Kostelanetz & His Orch. 8 sides, Columbia M463. $4.72. Arid, pretentious, symphonic jazz.	C	A	A
Mahler: *Symphony No. 1.* Minneapolis Symph. Orch. under Mitropoulos. 12 sides, Columbia M469. $6.82. Easy introduction to Mahler's nine unique, controversial symphonies.	A	AA	A
Ponchielli: *La Giaconda—Dance of the Hours.* Chicago Symph. Orch. under Stock. 2 sides, Columbia 11621. $1.05.	B	AA	AA

	Quality of Music	Interpretation	Fidelity of Recording
Schumann: *Symphony No. 3* (*Rhenish*). Phil. Symph. Orch. of N.Y. under Walter. 8 sides, Columbia M464. $4.72. Top recording of these warm romantic impressions of life on the Rhine about 1850.	AA	AA	A
Shostakovitch: *Symphony No. 1.* Cleveland Orch. under Rodzinski. 8 sides, Columbia M472. $4.72. Best recording of a modern work others find witty, but I find futile and depressing with moments of rare beauty.	B	AA	A
Tschaikowsky: *Andante Cantabile* (from Quartet). Leslie Heward String Orch. 2 sides, Columbia 7389. $1.05.	A	B	B
Tschaikowsky: *Hamlet—Overture.* London Phil. Orch. under Dorati. 2 sides, Victor 13760. $1.05.	C	B	B
Tschaikowsky: *Overture 1812.* Cleveland Orch. under Rodzinski. 4 sides, Columbia X205. $2.62. This noisy description of Napoleon's retreat from Moscow no longer thrills me. If it does you, then this is your set.	B	AA	AA
Tschaikowsky: *Symphony No. 4.* Minneapolis Symph. Orch. under Mitropoulos. 10 sides, Columbia M468. $5.77. Taut, deliberate yet often dramatic performance of Tschaikowsky's exciting symphony. Nearly equals Victor's outstanding M357.	AA	AA	AA
Tschaikowsky: *Symphony No. 5.* 10 sides, $5.77.			
London Phil. Orch. under Beecham. Columbia M470. $5.77.	AA	AA	B
Phila. Orch. under Ormandy. Victor M828. $5.77.	AA	AA	AA
Beecham is eloquent and subtle whereas Ormandy is straightforward. Ormandy's spacious recording definitely tops Beecham's. These are the best recordings of this famous symphony.			
Great Overtures. Symphony Orch. 8 sides, Masterpiece Set A16. $2.39. Rosamunde, Merry Wives of Windsor, Poet & Peasant, Euryanthe by an anonymous orchestra.	A	B	B
CONCERTO			
Mendelssohn: *Violin Concerto* (7 sides) **Mozart:** *Marriage of Figaro—Overture* (1 side). Anonymous Performers. Masterpiece Set A14. $2.39. The concerto is an esteemed, melodious masterpiece. Although the manufacturer claims all pressings do not present the distortion heard in one complete set and in samples from three others, I have yet to find one set that I would rate above C for fidelity. Szigeti's performance on Columbia M190 belongs in every classical library.	AA	A	C
Tschaikowsky: *Concerto No. 1.* Horowitz (piano). 8 sides, Victor M800. $4.72. Exciting, best-on-records performance of a popular, uninteresting show piece.	B	AA	A
CHAMBER & INSTRUMENTAL			
Bach: *The Art of Fugue.* Biggs (organ) 20 sides, Victor M832/3. $11.64. Best recording of Bach's last work—a monumental one—which should be heard a record or two at a sitting.	AA	AA	AA
Bach: *Partita No. 5.* Gieseking (piano). 4 sides, Columbia X208. $2.62. Suite of dances representing the lighter side of Bach.	B	AA	A
Beethoven: *Quartet 13* (Op. 130). Busch Quartet. 10 sides, Columbia M474. $5.77. Prized by advanced listeners. I prefer by a narrow margin the performance and recording (England circa 1934) on Victor M157.	AA	A	AA
Debussy: *Arabesques Nos. 1 & 2.* Iturbi (piano). 2 sides, Victor 18237. $1.05.	B	AA	AA
Mozart: *Duo No. 2.* Heifetz (violin), Primrose (viola). 5 sides, Victor M831. $3.15. Best recording of this little gem.	A	AA	A
Mozart: *Sonata No. 36.* Spalding (violin), Benoist (piano). 4 sides, Victor M819. $2.62. Ranks high in Mozart's successes in this field.	A	B	AA
Saint-Saens: *Sonata No. 1.* Pascal (violin), Philipp (piano). 6 sides, Columbia M471. $3.67. Light, simple, Gallic music recorded in France, 1935.	B	A	A
VOCAL			
Flotow: *Martha—M'Appari* & **Gounod:** *Faust—Salut, Demeure.* Bjoerling (tenor). 2 sides, Victor 13790. $1.05.	A	AA	AA
Hahn: *Paysage* & *Si Mes Vers Avaient Des Ailes.* Thorborg (contralto). 2 sides, Victor 2174. 79c.	A	AA	AA
Mozart: *Cosi Fan Tutte.* Glyndbourne Festival Opera Co. under Busch. 40 sides, Victor M812/3/4. $22.56. On records, the absurd plot doesn't get in the way of this spirited music. Many connoisseurs have imported these albums from England during the past five years, at $2.50 per disc.	AA	AA	AA
Rossini: *La Cenerentola—Nacqui all 'affanno* & *Semiramide—Bel raggio lusinghier.* Bampton (soprano). 2 sides, Victor 18217. $1.05.	B	AA	AA
Verdi: *Aida—Celeste Aida.* Gigli (tenor) & *O Patria Mia* (Bampton) (soprano). 2 sides, Victor 18221. $1.05.	A	A	AA
LIGHT			
Dawson: *Talk About a Child* & Spiritual: *Honor! Honor!* Holland (tenor). 2 sides, Victor 4556. 75c.	A	B	AA
Gershwin Memorial Album. Froman (soprano) & Victor Salon Group. 10 sides, Victor C29. $5.77. Musical comedy selections recorded from a 1938 radio program.	B	B	B
O'Hara: *There Is No Death* & **Sullivan:** *Pinafore—When I Was a Lad.* Thomas (baritone). Victor 18223. $1.05.	B	B	AA
Strauss, J.: *Wine, Women & Song.* Paris Cons. Orch. under Weingartner. 2 sides, Columbia 71210. $1.05.	A	A	B
Tangos. Cugat & His Orch. 8 sides, Victor P83. $2.62. New album but old recordings of over-arranged tangos.	A	B	A

Ratings of Motion Pictures

This department of CONSUMERS' DIGEST endeavors to supply the critical consumer with a digest of opinion from a number of reviews, ranging from the motion picture trade press to Parents' Magazine which rates motion pictures not only on their quality as entertainment, but on their suitability in various aspects for children.

It should be emphasized that the motion picture ratings which follow do not represent the judgment of a single person but are based on an analysis of the reviews appearing in some 24 different periodicals. (For example, "Hold That Ghost" was recommended by 3 reviewers, rated intermediate by 2, and not recommended by 1.) The sources of the reviews are:

America, Baltimore Sun, Box Office, Bridgeport (Conn.) Herald, The Christian Century, The Exhibitor, Harrison's Reports, Liberty, Mademoiselle, Motion Picture Herald, National Historical Magazine, National Legion of Decency List, News Week, The New Yorker, New York Herald Tribune, New York Sun, New York Times, New York World-Telegram, Parents' Magazine, Releases of the D.A.K. Preview Committee, Scribner's Commentator, Successful Farming, Time, and *Variety (daily).*

Periodicals will be added to this list from time to time as future exploration of the subject brings to light other journals offering critical appraisals of motion pictures which appear to be deserving of the intelligent reader's consideration.

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), and C (not recommended).

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure
biog—biography
car—cartoon
com—comedy
cri—crime and capture of criminals
doc—documentary
dr—drama
fan—fantasy
hist—founded on historical incident
mel—melodrama
mus—musical
mys—mystery
nov—dramatization of a novel
rom—romance
soc—social-problem drama
trav—travelogue
war—dealing with the lives of people in war time
wes—western

A	B	C		
—	2	4	**A Girl Must Live**	*rom AY*
—	4	—	**All-American Co-Ed**	*mus-com YC*
—	7	1	**All That Money Can Buy**	*dr A*
—	8	8	**Aloma of the South Seas**	*rom AY*
—	1	4	**Among the Living**	*mys A*
—	3	—	**Apache Kid, The**	*wes AY*
1	8	4	**Appointment for Love**	*com A*
—	3	—	**Arizona Bound**	*wes AY*
—	8	4	**Badlands of Dakota**	*wes AY*
—	4	1	**Bad Man of Deadwood**	*mus-wes AY*
1	3	1	**Bad Men of Missouri**	*wes-rom A*
—	9	4	**Belle Starr**	*mel AYC*
—	5	—	**Birth of the Blues**	*mus-com AY*
—	—	3	**Blonde from Singapore, The**	*mel A*
1	3	—	**Blondie in Society**	*com AYC*
—	3	2	**Blues in The Night**	*mus-dr A*
1	1	6	**Bowery Blitzkrieg**	*cri AY*
—	—	3	**Bullets for O'Hara**	*cri-rom A*
—	4	—	**Burma Convoy**	*mel AY*
—	8	3	**Buy Me That Town**	*com A*
—	5	2	**Charlie Chan in Rio**	*mys AY*
—	9	1	**Charlie's Aunt**	*com AYC*
—	3	1	**Chocolate Soldier, The**	*mus-com AY*
—	1	3	**Citadel of Crime**	*cri A*
1	1	3	**Cracked Nuts**	*com AY*
—	—	3	**Criminals Within**	*war-cri AYC*
—	2	2	**Date With The Falcon, A**	*mys AY*
—	2	4	**Deadly Game, The**	*war-mel A*
—	1	2	**Death Valley Outlaws**	*wes AYC*
1	8	4	**Dive Bomber**	*war-mel AYC*
—	2	2	**Doctors Don't Tell**	*cri A*
—	2	3	**Down in San Diego**	*cri AY*
—	3	—	**Down Mexico Way**	*mus-wes AYC*
—	6	1	**Dressed to Kill**	*mys AY*
—	3	1	**Driftin' Kid, The**	*wes AYC*
2	5	4	**Dr. Jekyll and Mr. Hyde**	*mel A*
—	8	5	**Dr. Kildare's Wedding Day**	*dr AY*
—	4	1	**Dude Cowboy**	*wes AY*
5	4	—	**Dumbo**	*car AYC*
—	3	4	**Ellery Queen and the Murder Ring**	*mys AY*
—	2	3	**Ellery Queen and the Perfect Crime**	*mys AYC*
—	9	2	**Father Takes a Wife**	*com AY*
—	5	2	**Feminine Touch, The**	*com A*
—	8	1	**Flying Blind**	*mel AYC*
1	3	2	**Flying Cadets**	*war-dr AYC*
—	3	—	**Forced Landing**	*mel AYC*
1	2	—	**Forgotten Village, The**	*doc A*
—	3	1	**Four Jacks and A Jill**	*mus-com AY*
—	1	3	**Frightened Lady**	*mel A*
1	3	1	**Fugitive Valley**	*wes AYC*
—	—	3	**Gambling Daughters**	*cri AY*
—	2	1	**Gauchos of Eldorado**	*wes AYC*
—	5	1	**Gay Falcon, The**	*cri A*
—	5	—	**Gentleman from Dixie, The**	*mus-mel A*
—	7	—	**Glamour Boy**	*mus-com AY*
—	4	4	**Great Guns**	*com AY*
—	5	—	**Gunman from Bodie**	*wes AYC*
—	5	2	**Harmon of Michigan**	*dr AYC*
—	2	4	**Henry Aldrich for President**	*com AYC*
2	7	—	**Here Comes Mr. Jordan**	*com AY*
—	3	3	**Highway West**	*mel AY*
4	12	2	**Hold Back the Dawn**	*mel A*
3	2	1	**Hold That Ghost**	*com AYC*
1	9	6	**Honky-Tonk**	*mel A*
1	3	—	**Hot Spot**	*mys-mel A*

A	B	C		
7	4	1	How Green Was My Valley	*nov A*
1	3	1	Hurricane Smith	*mel AY*
1	7	4	Ice-Capades	*com AY*
—	10	—	International Lady	*war-dr AY*
—	4	4	International Squadron	*war-mel AY*
3	10	—	It Started With Eve	*rom AYC*
—	2	1	Jesse James at Bay	*mus-wes AYC*
—	2	4	Kid from Kansas, The	*mus-mel AY*
1	2	1	King, The	*com A*
—	2	2	King of Dodge City	*wes AYC*
—	1	2	Kisses for Breakfast	*com A*
1	8	2	Ladies in Retirement	*cri A*
—	5	5	Lady Be Good	*mus-com AY*
—	—	4	Lady Scarface	*cri A*
—	4	2	Last of the Duanes	*wes AY*
—	1	8	Law of the Tropics	*rom A*
—	4	1	Let's Go Collegiate	*mus-com AYC*
—	13	1	Life Begins for Andy Hardy	*com AY*
6	5	—	Little Foxes, The	*mel A*
—	3	—	Lone Star Vigilantes, The	*mus-wes AY*
1	3	1	Look Who's Laughing	*com AYC*
3	11	3	Lydia	*dr A*
4	4	—	Maltese Falcon	*mys A*
—	4	4	Man at Large	*war-mys A*
1	5	—	Man from Montana	*wes AYC*
1	5	1	Married Bachelor	*com A*
—	2	1	Masked Rider, The	*wes AY*
—	2	2	Men in Her Life, The	*dr A*
—	1	2	Mercy Island	*mel A*
—	3	4	Mexican Spitfire's Baby	*com A*
—	3	—	Miss Polly	*com AYC*
—	1	4	Mob Town	*cri AY*
—	5	3	Moonlight in Hawaii	*mus-com AY*
—	3	1	Moon Over Her Shoulder	*com A*
—	2	1	Mountain Moonlight	*mus-com AY*
—	3	—	Mr. Celebrity	*com AY*
1	6	1	My Life with Caroline	*com A*
—	2	2	Mystery Ship	*cri AY*
—	7	6	Navy Blues	*mus-com AY*
—	4	3	Never Give a Sucker an Even Break	*com AYC*
3	2	2	New Wine	*biog-rom AYC*
—	3	3	New York Town	*rom AY*
—	4	1	Niagara Falls	*com A*
—	5	1	Night of January 16, The	*mys A*
—	4	2	Nine Lives Are Not Enough	*mys A*
2	9	4	Nothing But the Truth	*com AY*
—	2	2	Obliging Young Lady	*com AY*
—	2	1	Officer and the Lady, The	*cri A*
3	4	—	One Foot in Heaven	*dr AYC*
—	10	4	Our Wife	*com AY*
—	3	2	Outlaws of the Desert	*wes AY*
—	3	3	Parachute Battalion	*war-mel AYC*
—	4	4	Pittsburgh Kid, The	*mel A*
—	1	2	Prairie Stranger	*wes AY*
1	2	3	Prime Minister, The	*hist-dr AY*
—	1	8	Private Nurse	*com A*
—	1	2	Public Enemies	*cri A*
—	2	5	Rags to Riches	*cri AYC*
—	1	2	Raiders of the Desert	*mel AY*
—	4	1	Rawhide Ranger	*wes AYC*
—	3	1	Reg'lar Fellers	*com AYC*
2	2	—	Reluctant Dragon, The	*car AYC*
—	4	1	Riders of the Purple Sage	*wes AY*
—	4	1	Riders of the Timberline	*wes AY*
—	4	—	Riding the Wind	*wes AY*
—	6	—	Ringside Maisie	*mel AY*
—	1	2	Roaring Frontiers	*wes AY*
—	2	1	Sailors on Leave	*mus-com AYC*
—	4	2	Scattergood Meets Broadway	*com AYC*
—	4	2	Secret of the Wastelands	*wes AY*
3	4	—	Sergeant York	*war-biog AYC*
—	4	—	Shadow of the Thin Man	*mys A*
—	2	1	Shepherd of the Hills	*nov AY*
—	4	2	Sing Another Chorus	*mus-com AYC*
—	2	1	Six Gun Gold	*wes AYC*
2	4	1	Skylark	*com AY*
—	4	—	Small Town Deb	*mel AYC*
1	3	6	Smilin' Through	*mus-rom AYC*
—	2	6	Smiling Ghost, The	*mys AY*
—	—	3	South of Tahiti	*com A*
—	3	—	Spooks Run Wild	*mys AY*
4	1	1	Stars Look Down, The	*soc AY*
—	3	2	Stick to Your Guns	*wes AY*
—	5	—	Story of the Vatican	*doc AYC*
1	13	1	Sun Valley Serenade	*rom AY*
1	2	—	Sundown	*mel A*
—	2	1	Sunny	*mus-com AYC*
—	2	2	Sunset in Wyoming	*wes AYC*
3	1	1	Suspicion	*dr A*
—	2	2	Swamp Water	*mel A*
—	4	—	Swing It, Soldier	*mus-com AY*
—	11	4	Tanks a Million	*war-com AYC*
1	4	—	Target for Tonight	*war-doc AY*
1	8	—	Texas	*wes A*
—	2	3	They Meet Again	*cri AYC*
1	7	10	This Woman Is Mine	*nov AY*
—	4	2	Three Girls About Town	*com A*
—	2	5	Three Sons O' Guns	*com AYC*
—	6	2	Tillie the Toiler	*com AYC*
—	2	2	Top Sergeant Mulligan	*com AY*
—	3	2	Twilight on the Trail	*mus-wes A*
—	2	2	Two in a Taxi	*cri AY*
—	3	2	Two Latins from Manhattan	*mus-com AY*
1	3	—	Two-Faced Woman	*rom A*
—	3	2	Under Fiesta Stars	*mus-wesAYC*
—	3	4	Unexpected Uncle	*com AY*
1	10	—	Unfinished Business	*com AY*
—	2	2	Unholy Partners	*mel A*
—	3	—	Voice in the Night, The	*war-mel A*
—	1	5	We Go Fast	*com AY*
—	1	2	Weekend for Three	*com A*
1	6	1	Weekend in Havana	*mus-com AY*
—	2	3	West Point Widow	*dr AY*
—	8	6	When Ladies Meet	*dr A*
1	12	1	Whistling in the Dark	*mel AYC*
—	6	3	Wild Geese Calling	*nov A*
—	4	4	World Premiere	*com AY*
2	10	1	Yank in the R.A.F., A	*war-rom AY*
1	2	—	You Belong to Me	*rom A*
3	8	—	You'll Never Get Rich	*war-mus-com AY*
—	2	1	Zis Boom Bah	*mus-com AY*